

# **KODIAK COMPREHENSIVE SALMON PLAN**

## **PHASE III, 2010-2030**



**Frazer Lake Fish Pass**

**Developed by  
The Kodiak Regional Planning Team  
May 2011**

The Kodiak Comprehensive Salmon Plan details program planning levels that are substantially greater than current budget allocations and, as such, is for planning and project prioritization purposes only. This plan does not constitute a commitment for Kodiak Regional Aquaculture Association or Alaska Department of Fish and Game staffing increases or funding for future projects or operational and maintenance increases.

*This report was prepared by the Kodiak Regional Planning Team under award NA07NMF4380288 from the National Oceanic and Atmospheric Administration, U.S. Department of Commerce, administered by the Alaska Department of Fish and Game. The statements, findings, conclusions, and recommendations are those of the author(s) and do not necessarily reflect the views of the National Oceanic and Atmospheric Administration, the U.S. Department of Commerce, or the Alaska Department of Fish and Game.*

# STATE OF ALASKA

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May 18, 2011

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Dear Mr. Brennan:

This letter is to inform you and members of the Kodiak Regional Plan Team (KRPT) of my approval of the Kodiak Regional Comprehensive Salmon Plan Phase III, 2010-2030 (KCSP).

Prior to submittal of this plan for my consideration, I understand that, in compliance with AS.10.375, KRPT worked diligently to gather public input for the third phase of the KCSP. The KRPT created a public survey questionnaire which was available in April 2009. Bulk mailings distributed surveys to all Kodiak Management Area commercial salmon permit holders, commercial sport fish guides, and current subsistence permit holders. Further mailings went to local city and village governments and tribal organizations. The KRPT distributed well over 1,000 surveys, and received 453 completed surveys from the public. These surveys guided the KRPT in writing the draft KCSP. The public review draft was available from December 1, 2010, through January 31, 2011. The KRPT completed its final review of the draft and consideration of public comments at its March 9, 2011 meeting.

This plan sets goals for increasing the KMA salmon harvests to 37.7 million salmon during even-numbered years and 34.2 million during odd-numbered years. This represents 14.2 million more even-year and 18.7 million more odd-year salmon than the current ten-year average commercial harvest. At more than double the recent ten-year average, the supplemental harvest goals set by the KRPT are considerable. However, the plan also outlines many opportunities, through projects and programs, which can be utilized to achieve these higher goals. Whether the goals in this plan are achieved will depend on cooperation between the department, aquaculture association, and many other affected groups and individuals. I can commit the department to working with KRAA in this endeavor; I am confident that KRAA, other agencies and organizations, and resource users will find and implement enhancement activities they find acceptable and most beneficial.

Sincerely,



Cora Campbell  
Commissioner

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## Executive Summary

Comprehensive salmon planning represents an ongoing process of identifying enhancement<sup>1</sup>, rehabilitation<sup>2</sup>, research, and management priorities for the salmon resources of the Kodiak region. The first Kodiak Regional Comprehensive Salmon Plan (KCSP), written in the early 1980s, reflected the experiences of over a century of salmon fisheries, management, research, and aquaculture in the Kodiak Management Area (KMA; Appendix A and B). In 2010, the process of updating the KCSP had the additional advantage of nearly thirty more years of these activities in the KMA. Advances in science and technology provide perspective in assessing the success of various projects conducted under the auspices of the original plan and its first two revisions (Phase II and the Phase II Revision). This updated perspective also provides a context for the structuring of future enhancement and management activities for this region. This update, the third phase of the KCSP, focuses on the results of the last quarter century (1982-2009) and, most importantly, where to go in the next 20 years (2010-2030).

Prior to the early 1980s and the acceptance of the original KCSP by the commissioner of the Alaska Department of Fish and Game (ADF&G; KRPT 1984), several KMA salmon enhancement projects were very successful, such as sockeye salmon introductions to Frazer Lake. Others, such as the federal fish hatchery at Afognak Lake and the salmon industry hatchery at Karluk Lagoon that were active in the early part of the 20<sup>th</sup> century, were not. Research and management of salmon under federal and territorial programs, while extensive, lacked the spontaneity needed by a dynamic Alaskan salmon fishery. Since statehood, management of Alaska salmon fisheries has been under the direction of ADF&G and is responsive to year-to-year and inseason variations, and has generated positive results for many.

Overall, the projects undertaken and facilities used during this recent period (1982-2008) are a biological, economic, and social success story. Each year commercial, sport, and subsistence fishermen catch millions of supplemental salmon produced by successful enhancement projects that provide food for families and jobs for fishermen, seafood workers, hatchery employees, and citizens of the state. Millions of dollars in revenue are generated annually by these fisheries. These monies are then spent at local businesses for marine supplies, groceries, air charters, fuel sales, and hardware. These revenues further support the tax base for municipal and state governments.

In 1984, the first KSCP set harvest level goals for each species of salmon in the KMA, for both natural and supplemental production. It seemed improbable that the harvest goals outlined in the

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<sup>1</sup> Enhancement of salmon stocks has been defined in State of Alaska salmon fishery regulations, as adopted by the Alaska Board of Fisheries, in the Policy for the Management of Sustainable Salmon Fisheries: 5 AAC 39.222(f)(9), as a “specific manipulation, such as hatchery augmentation or lake fertilization, to enhance its productivity above the level that would naturally occur; “enhanced salmon stock” includes an introduced stock, where no wild salmon stock had occurred before, or a wild salmon stock undergoing manipulation, ...”. This definition will apply throughout this report.

<sup>2</sup> Rehabilitation of salmon stocks has been defined in State of Alaska salmon fishery regulations, as adopted by the Alaska Board of Fisheries, in the Policy for the Management of Sustainable Salmon Fisheries: 5 AAC 39.222(f)(29), as “efforts applied to a salmon stock to restore it to an otherwise natural level of productivity; “rehabilitation” does not include an enhancement, which is intended to augment production above otherwise natural levels;”. This definition will apply in this report.

plan could be reached by 2002, and many people derided the goals of the KCSP as unattainable “paper fish”. However, time, hard work and dedication, along with favorable environmental conditions, saw to it that those goals were met or exceeded. The KCSP was revised in 1992, and even loftier salmon production and harvest goals were put in place. These more ambitious goals have been achieved in five of the past ten years.

A public survey conducted for this phase of planning for Kodiak salmon fisheries shows continued public support in Kodiak communities for salmon enhancement, management, and rehabilitation. The public’s knowledge of, and interest in, sustaining local salmon resources was demonstrated by their participation in public meetings and responses to the public survey. As the top priorities for multiple user groups, there was a very clear call for additional and expanded enhancement of sockeye and king salmon.

Looking ahead to 2030, the Kodiak Regional Planning Team has again set goals for increasing the KMA salmon harvest to 37.7 million salmon during even numbered years and 34.2 million during odd numbered years. This represents 14.2 million more even-year and 18.7 million more odd-year salmon than the current ten-year average commercial harvest. At more than double the recent ten-year average, the supplemental harvest goals set by the KRPT are considerable. This plan outlines many opportunities, through projects and programs, which can be utilized to achieve these higher goals.

# Chapter 1

## Introduction; the Kodiak Comprehensive Salmon Plan

### 1.1. Overview: Origins and History of Regional Comprehensive Salmon Plans

This document is the fourth writing or revision of the Kodiak Comprehensive Salmon Plan (KCSP) covering salmon enhancement, management, rehabilitation, and research efforts and habitat concerns for the Kodiak Management Area (KMA; Figure 1). The first KCSP document, what is now termed Phase I, was approved by the commissioner of the Alaska Department of Fish and Game (ADF&G) in 1984 (KRPT 1984). It is a very detailed document and most of it remains applicable today. The next two iterations, Phase II and the Phase II Revision, revised harvest goals and updated potential project lists. These three phases of the KCSP covered the twenty-one year period, 1982 to 2002. This document contains an overview of those plans and their results. It also contains the results of a 2007-2010 planning process and outlines updated 2010 to 2030 harvest goals and potential project lists that are the basis of this third phase of the Kodiak Comprehensive Salmon Plan.

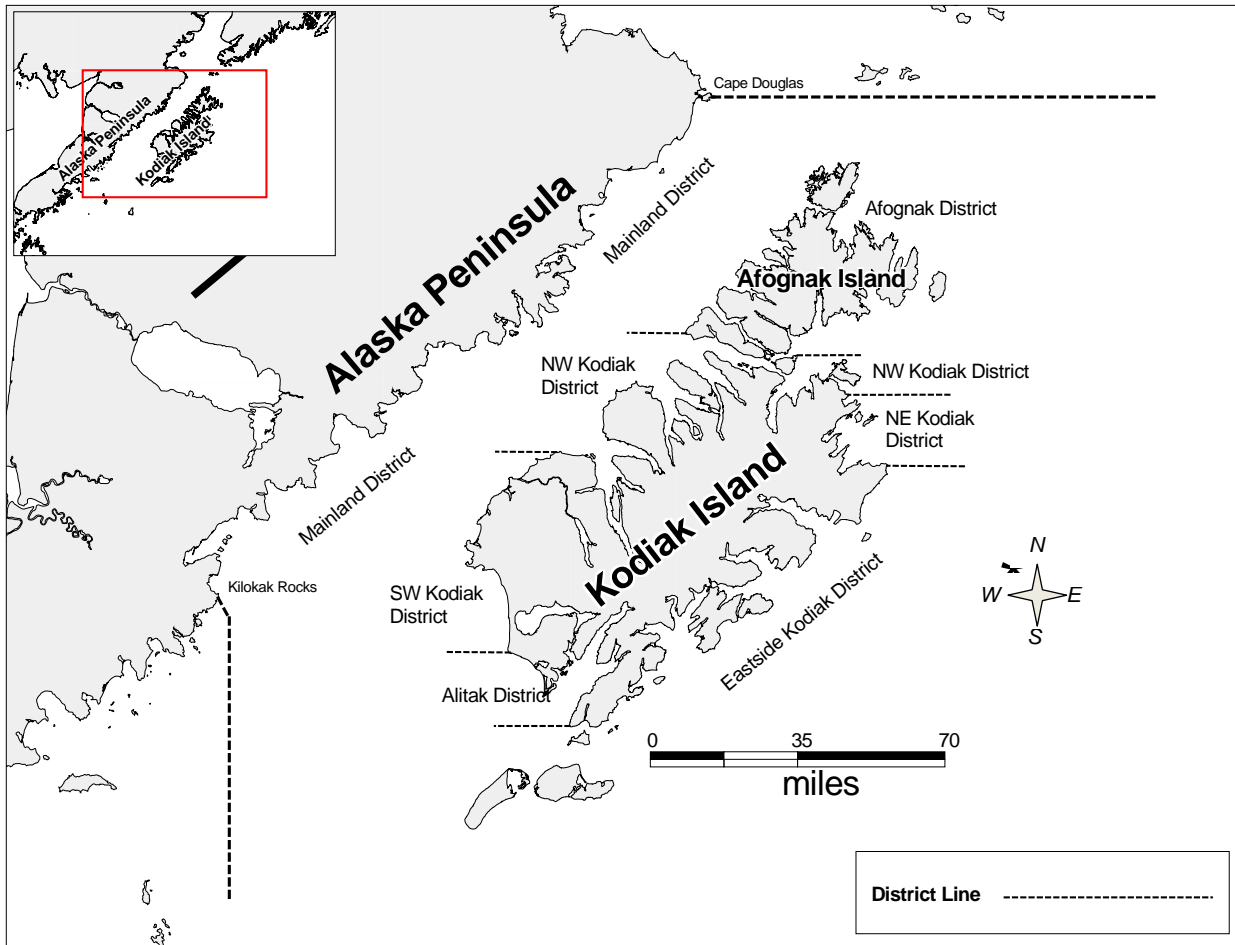


Figure 1. Map of the Kodiak Management Area showing commercial fishing district boundaries.

### 1.1.1 Authority

The commissioner of the Alaska Department of Fish and Game has the authority under the Alaska Statute 16.10.375-480 to develop a comprehensive plan on salmon production in the KMA. This responsibility has been delegated to Regional Planning Teams (RPT; 5AAC 40.300-370), consisting of representatives from ADF&G and qualified regional aquaculture associations (RAAs, such as the Kodiak Regional Aquaculture Association or KRAA). Alaska Statutes define the duties of the RPT, among other things, as follows:

- Comprehensive plan development and amendment;
- Review of private nonprofit (PNP) hatchery permit applications and provision of recommendations to the commissioner;
- Review and comment on proposed hatchery permit suspensions or revocations to the commissioner.

### 1.1.2 The Alaska Department of Fish and Game

The Alaska Department of Fish & Game is responsible for salmon resource management in the State of Alaska. The mission of ADF&G is: *“To protect, maintain, and improve the fish, game, and aquatic plant resources of the state, and manage their use and development in the best interest of the economy and the well-being of the people of the state, consistent with the sustained yield principle.”* Responsibility for maintenance and management of salmon resources in the KMA is shared by two divisions within ADF&G: the Division of Sport Fish (SF) and the Division of Commercial Fisheries (CF). The Division of Sport Fish operates with the goal of benefitting recreational anglers, the state's economy, and future generations of Alaskans. Their mission is to protect and improve the state's recreational fisheries resources. The Division of Commercial Fisheries provides the services of stock management and assessment, laboratory services in genetics, pathology, and marking/tagging, aquaculture permitting, evaluation and oversight, and maintains programs for dissemination of information and public participation. The Habitat Division provides oversight for protection of salmon spawning and rearing areas, but defers heavily to recommendations by local SF and CF staff. Formerly, the Fisheries Rehabilitation and Enhancement and Development (FRED) Division was responsible for developing and maintaining a comprehensive, long-range plan for salmon enhancement and rehabilitation efforts. However, the state made the decision that most of the state hatcheries should be operated by the private sector, and FRED was incorporated into the CF division in 1992. Now a relatively small section in CF called the Fishery Monitoring, Permitting, and Development (FMPD) section has the ADF&G lead role for salmon enhancement activities in the department.

During development of the Phase I, Phase II, and Phase II Revision documents (1982-2002), ADF&G was represented on the RPT by one member from each of CF, SF, and FRED. Now ADF&G representation has changed to one member each of CF, SF, and FMPD divisions/section.

### 1.1.3 The Kodiak Regional Aquaculture Association

Regional aquaculture associations were originally formed in 1976 under AS 16.10.380 through legislative action prompted by fishermen who lobbied for exclusion of private enterprise from fisheries development and enhancement (and the creation of the nonprofit hatchery associations—both the regional aquaculture association for each area, as well as other PNP organizations). Their ultimate goal was to have a voice in fishery enhancement decisions. This was achieved through creation of the regional aquaculture associations in 1976 and the role the associations take as part of the regional planning teams (Pinkerton, 1989). Each association is governed by a board of directors comprised of area permit holders representing each gear group as well as processing, marketing, sport fishing and other interests. The Kodiak Regional Aquaculture Association (KRAA) was officially approved by the commissioner of ADF&G in 1983, and it has been enhancing and rehabilitating salmon runs in the Kodiak area for over 25 years. Currently, the association is funded through two avenues: cost-recovery fishery revenues and a two percent salmon enhancement tax (SET) on first point-of-sale commercial salmon fisheries harvest revenues. The SET is initially paid to the State of Alaska by KMA salmon permit holders. The tax is calculated from gross revenue at the time of delivery and is held in the State of Alaska General Fund until the time of disbursement each year. The monies distributed to each RAA are based on landings in that region, and SET revenues generated in the KMA are disbursed annually to KRAA in the form of a grant from the state Department of Commerce, Community, and Economic Development.

KRAA operates the Kitoi Bay Hatchery (KBH), on the east side of Afognak Island, and the Pillar Creek Hatchery (PCH), north of the City of Kodiak. KRAA also funds numerous salmon research, enhancement and rehabilitation projects within the KMA.

### 1.1.4 The Kodiak Regional Planning Team

The Kodiak Regional Planning Team (KRPT) is comprised of six voting members: three positions are held by representatives of KRAA and representatives of ADF&G hold three seats. The state is represented by two members of the CF staff, one from local KMA or regional (Region IV) salmon management, one from the FMPD Section, and one member of the Kodiak SF staff. The team currently has a nonvoting chairman and several nonvoting ex-officio members. According to 5AAC 40.340, “each regional planning team shall prepare a regional comprehensive salmon plan, for the appropriate region to rehabilitate natural stocks and supplement natural production with provisions for both public and private nonprofit hatcheries.”

### 1.1.5 Kodiak Comprehensive Salmon Plan, 1982-2002 (1984)

The Kodiak Regional Comprehensive Salmon Plan, 1982-2002, was approved by the commissioner of ADF&G in 1984. This plan provided a socio-economic and geographic overview of the KMA and documented the status of the fisheries from a historical perspective. The plan also set goals for salmon harvest during the life of the plan. Results of the 1982 public survey supported more salmon enhancement activity in the KMA. All three commercial gear groups (set gillnet, beach seine, and purse seine) preferred to have sockeye salmon enhanced.

The preferred major rehabilitation and enhancement activities included stocking unproductive lakes, fertilizing lakes, and building hatcheries. The report states the “major distinction of enhancement activities during the period of 1982-2002 is the strong emphasis placed on the combined state and private nonprofit hatcheries.” The plan envisioned six new hatcheries, along with the existing Kitoi Bay Hatchery and anticipated an annual contribution of 9,685,000 supplemental salmon to the KMA salmon harvest. The KRPT also established an overall, combined harvest target of 22,950,000 salmon in even-numbered years and a harvest of 17,950,000 salmon in odd-numbered years.

#### 1.1.6 Kodiak Comprehensive Salmon Plan 1982-2002 Phase II (1987)

The Phase II Comprehensive Plan was approved by the commissioner of ADF&G in 1987. Phase II identified long-term opportunities and stock-building strategies by species, fishing district, and agency. A five-year plan of action was developed based on identified high priority projects. Those projects were either ongoing or suggested for implementation within a five-year period. The public survey conducted for Phase II yielded low survey returns. In 1986, the KRPT established a species prioritization for emphasis in the Phase II plan. The priority species in descending order were: (1) sockeye, (2) coho, (3) chum, (4) pink, and (5) king salmon. High- and low-level priorities were also established for KMA salmon management, rehabilitation, enhancement, and research projects.

Within the Executive Summary, it was stated that “In the face of state budget cutbacks, a growing regional and international competition for salmon markets, and an uncertain market picture...there has never been a better time for all the user groups to work together in strengthening the salmon industry of the island.”

#### 1.1.7 Kodiak Comprehensive Salmon Plan 1982-2002, Phase II Revision (1992)

In 1990, the KRPT initiated an update of the Phase II plan. The existing plan was seen as outdated because: (1) initial harvest goals and objectives for sockeye salmon had already been realized; (2) fisheries data (management and biological) had increased; (3) fish culture technology had improved; and, (4) project priorities had changed. A list of potential projects was compiled (Appendix C) and a new five-year plan of action was written (Appendix D) and new high and low priorities were established by agency, species, and district within the KMA. The plan stated “the KRPT is responsible for relating actual events to the plan and making the plan responsive to new knowledge, ideas, and changing conditions.” The KRPT established a harvest goal of 30,958,000 salmon during even-numbered years and 25,958,000 salmon during odd-numbered years. The supplemental harvest goal was increased from 9,685,000 to 14,686,000 salmon. The Phase II Revision of the KCSP was approved by the commissioner of ADF&G in 1992.



## 1.2 Prior Kodiak Comprehensive Salmon Plan Objectives and Results

### 1.2.1 Harvest Objectives and Results

The long-term commercial harvest goal set in the Phase II Revision of the KCSP was 31.0 million even-year and 26.0 million odd-year salmon. Table 1 shows the KMA actual harvest by year and species from 1999-2008, (Dinnocenzo 2010). The ten-year average is 22.2 and 24.3 million salmon on even and odd years respectively (Table 2). There was a three-year period (2005-2007) when the overall harvest goal was reached. This was primarily due to strong pink salmon returns, and it is important to note that during this period individual goals were not met for all species. The average odd-year pink salmon harvest goal was exceeded by 1.1 million fish.

Table 1. Commercial salmon harvest by species in the Kodiak Management Area, 1999-2008.

<b>Kodiak Commercial Salmon Harvest</b>						
<b>Year</b>	<b>Sockeye</b>	<b>Coho</b>	<b>Chum</b>	<b>Pink</b>	<b>King</b>	<b>Total</b>
1999	4,651,000	297,000	914,000	11,898,000	18,000	17,778,000
2000	2,905,000	333,000	1,194,000	9,927,000	12,000	14,372,000
2001	2,658,000	408,000	1,054,000	19,567,000	23,000	23,710,000
2002	1,825,000	496,000	650,000	18,328,000	19,000	21,318,000
2003	4,042,000	339,000	1,152,000	14,066,000	19,000	19,617,000
2004	4,166,000	490,000	1,122,000	21,441,000	29,000	27,247,000
2005	3,047,000	396,000	477,000	30,139,000	14,000	34,074,000
2006	1,584,000	554,000	1,082,000	31,693,000	20,000	34,933,000
2007	2,013,000	356,000	729,000	24,809,000	17,000	27,934,000
2008	1,819,000	301,000	908,000	8,788,000	17,000	11,834,000
<b>Odd-year Average</b>	2,871,000	397,000	928,000	20,096,000	19,000	24,311,000
<b>Even-year Average</b>				18,035,000		22,250,000

Table 2. KCSP Phase II Revision total annual salmon harvest objectives and results, 1999-2008.

<b>Kodiak Commercial Salmon Harvest</b>		
<b>Species</b>	<b>Annual Objective</b>	<b>Average 1999-2008</b>
Sockeye Salmon	4,400,000	2,871,000
Coho Salmon	543,000	397,000
Chum Salmon	2,000,000	928,000
Odd-year Pink Salmon	19,000,000	20,096,000
Even-year Pink Salmon	24,000,000	18,035,000
King Salmon	15,000	19,000
<b>Odd-year Total Salmon</b>	25,958,000	24,311,000
<b>Even-year Total Salmon</b>	30,958,000	22,250,000

In the KCSP Phase II Revision, the harvest objective for supplemental salmon was set at 14.7 million even- and odd-year salmon. Table 3 shows supplemental harvest estimates by year and species from 1999-2008. The ten-year average was 5.0 million even-year and 9.8 million odd-year supplemental, or enhancement produced, salmon. The overall supplemental harvest goal was only reached one year in ten (2005) when 14.5 million supplemental salmon were taken in commercial harvests in the KMA.

It is important to note that supplemental harvests are considered estimates, for it is not possible to differentiate supplemental salmon from natural production in most cases. In addition, salmon from many enhancement projects are targeted for and harvested in subsistence and sport fisheries. Thus, supplemental harvests are generally underreported when represented as commercial harvest only, though subsistence and sport harvests would be, in most cases, minor when compared to the magnitude of the commercial harvest.

Table 3. KMA Supplemental salmon commercial harvest, 1999-2008 (includes Frazer Lake sockeye salmon harvest).

<b>Kodiak Commercial Supplemental Salmon Harvest</b>					
<b>Year</b>	<b>Sockeye</b>	<b>Coho</b>	<b>Chum</b>	<b>Pink</b>	<b>Total</b>
1999	716,000	117,000	141,000	4,057,000	5,031,000
2000	508,000	133,000	304,000	3,660,000	4,605,000
2001	485,000	152,000	216,000	13,127,000	13,980,000
2002	569,000	209,000	89,000	6,697,000	7,564,000
2003	847,000	144,000	466,000	5,533,000	6,990,000
2004	752,000	128,000	240,000	3,962,000	5,082,000
2005	678,000	152,000	92,000	13,604,000	14,526,000
2006	124,000	168,000	178,000	4,158,000	4,628,000
2007	236,000	126,000	211,000	7,885,000	8,458,000
2008	598,000	301,000	93,000	2,118,000	3,110,000
<b>Total</b>	5,513,000	1,630,000	2,030,000	Odd-year 44,206,000	
				Even-year 20,595,000	
<b>Average</b>	551,000	163,000	203,000	Odd-year 8,841,000	Odd-year 9,758,000
				Even-year 4,119,000	Even-year 5,036,000

### 1.2.2 Monetary Contribution by Species

Sockeye Salmon: To determine the value of supplemental sockeye salmon harvests, we can utilize harvest contributions determined by ADF&G scale pattern analysis and extrapolate based on estimated exvessel values (Figure 2). The exvessel value, as reported in this document, is the original sale price of the salmon recorded in the fish ticket. For purposes of this document we will examine supplemental contribution beginning in 1993 when enhanced sockeye salmon began to return to Spiridon Lake/Telrod Cove. For the period 1993 through 2008, a total of \$43.7 million was attributed to enhanced sockeye salmon production, approximately \$2,730,000 annually (calculations based on fish ticket data; estimated supplemental contribution to fisheries). This figure includes projects at Spiridon and Frazer Lakes, as well as projects on Afognak Island. The monetary contribution of these projects exceeds that of the other species and further reflects the top priority placed on sockeye salmon by the public and the KRPT.

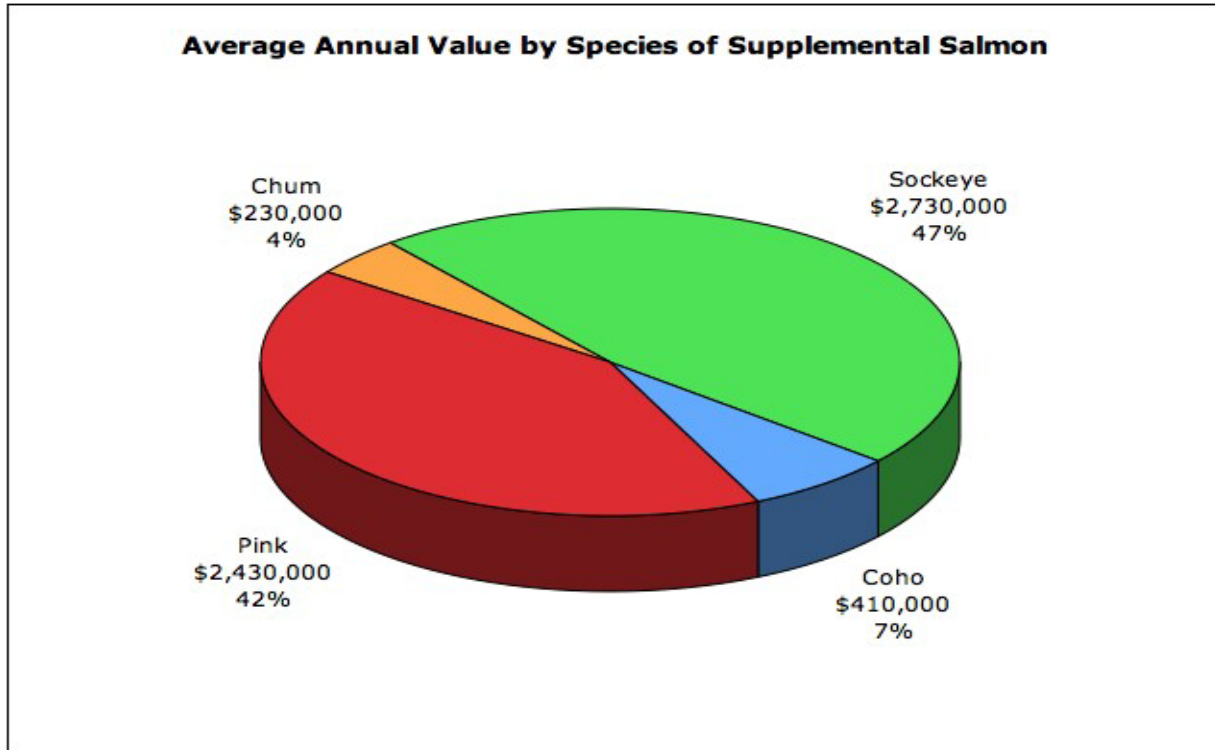


Figure 2. Average annual revenue generated by commercial harvest of supplemental salmon production in the KMA, by species 1993-2008.

**Pink Salmon:** KMA supplemental pink salmon harvest value equates to KBH pink salmon returns. For the period 1993 through 2008, the approximate total value of the pink fishery at KBH is \$38.9 million or \$2,430,000 annually. Over the stated period, this important fishery produced an average of 8.8 million pink salmon on odd years and 4.1 million pink salmon on even years. The large, concentrated run of pink salmon to Kitoi Bay permits high efficiency for the fleet, and it is close to the processing plants in the City of Kodiak leading to fresher, higher quality product.

**Chum Salmon:** The value of KBH chum salmon production from 1993 through 2008 was approximately \$3.7 million or \$230,000 annually. For five years within this 16-year period, the value of returning KBH chum salmon exceeded \$400,000 per year. Though these numbers fall far short of the goal of 1.1 million supplemental chum salmon produced in the KMA, this fishery is an important component of the season’s fisheries at KBH. The early-run timing of the KBH returns allows an extended season for the purse seine fleet and has the added benefit of location close to the processing facilities in the City of Kodiak. The run timing of KBH (Sturgeon River stock) chum salmon is earlier than most chum salmon returns in the KMA, and was specifically selected to “round out” the KBH fishing season.

**Coho Salmon:** From 1993 through 2008, the approximate commercial value of coho salmon from enhancement efforts was \$6.7 million or \$410,000 annually. This revenue is generated primarily by the KBH one-check coho smolt program which produces annual returns to Kitoi Bay in excess of 150,000 adult coho salmon. Coho salmon from this project are caught mostly

as incidental harvest in the pink salmon fishery and through directed coho salmon harvest fisheries in late August and Early September.

Coho salmon fry and fingerlings from both KBH and PCH are stocked at locations on Afognak and Spruce Islands, at Port Lions and into systems along the Kodiak road system. Coho salmon have a very high value as a sport fish as well as commercial fishery value; however, there are no means of assessing and quantifying the harvest numbers or value of sport-caught supplemental coho salmon produced by KRAA enhancement projects.

**King Salmon:** During the period of the previous KCSP (Phase I, Phase II, and Phase II Revision, 1982 to 2002) there were several projects initiated to establish king salmon runs. These met with varying degrees of success, but were not adequate to produce sustainable king salmon runs or fisheries. In 1998, a project to establish a Kodiak road system king salmon fishery was initiated by ADF&G SF and PCH. This project has been successful in establishing a returning broodstock at Monashka Creek, and in recent years has expanded to stock the American and Olds Rivers, all locations on the road system. The harvest of supplemental king salmon produced from this project is difficult to assess although it is probable the majority of the fish have been taken by anglers. The king salmon projects are funded through SF funds, primarily from Federal Aid to Sport Fish Restoration, Dingell-Johnson / Wallop-Breaux program. KRAA provides additional support to these projects through a cooperative agreement with SF Division.

Commercial king salmon harvests during the period of the previous phases of the KCSP exceeded the objectives set by the plan; however, this was likely the result of a concurrent, broad-scale increase in king salmon abundance and not specifically due to local enhancement efforts. Consequently, for the purposes of this plan, no king salmon harvested in the KMA are considered supplemental production. More recently, king salmon harvest numbers have declined, and managers are seeking to understand the causes.

### 1.2.3 Monetary Benefit Received from Supplemental Production by District

Within the Kodiak Management Area, the systems that contribute significant numbers of supplemental salmon to the commercial salmon fisheries are from the Afognak, Northwest Kodiak (Westside), and Alitak (Southend) Districts. For the period 1993 through 2008, the total value of commercially-harvested supplemental salmon is represented by these districts in the following manner (Figure 3): Afognak fisheries, 59% (\$55.4 million, \$3.46 million annually); Northwest (Westside) Kodiak District fisheries, 18% (\$17.4 million, \$1.08 million annually); and Alitak fisheries, 23% (\$20.2 million, \$1.37 million annually).

As noted above, determining actual supplemental contribution is complicated by the difficulty in separating supplemental from natural production at harvest. Additionally, the rates of interception in other commercial, sport, and subsistence fisheries are generally unknowns. Therefore, the numbers provided in this section likely under represent the total contribution of supplemental salmon in the KMA and should be considered minimums. The values reported here do not include enhancement of natural production from lake nutrient enrichment projects during the late 1980s, 1990s, and into 2001. It is generally accepted that returning adult salmon

pass through many fishing districts, and some will likely be taken in subsistence, sport, and/or commercial fisheries within those districts. Therefore, it is likely that supplemental, or enhancement-produced, salmon are harvested in fishing districts other than those listed above, but it is not possible to ascertain the actual number or value.

The catch distribution of supplemental salmon, and the added value brought to each district in the KMA, has been relatively balanced, with the exception of the Eastside Kodiak District where there are currently no enhancement projects. As stated in the Phase II Revision, “the KRPT will continue to update the plan using specific criteria to address changing goals and objectives. This will require strong public participation in the salmon planning and project implementation process throughout the life of the plan to ensure an equal and just distribution of the economic benefits resulting from the projects.” An effort to achieve this balance in participation and representation has been attempted with the KRAA Board of Directors. The KRAA Board is comprised of members from different user groups (commercial, sport, subsistence, etc.) and different fishing districts and gear groups in the KMA.

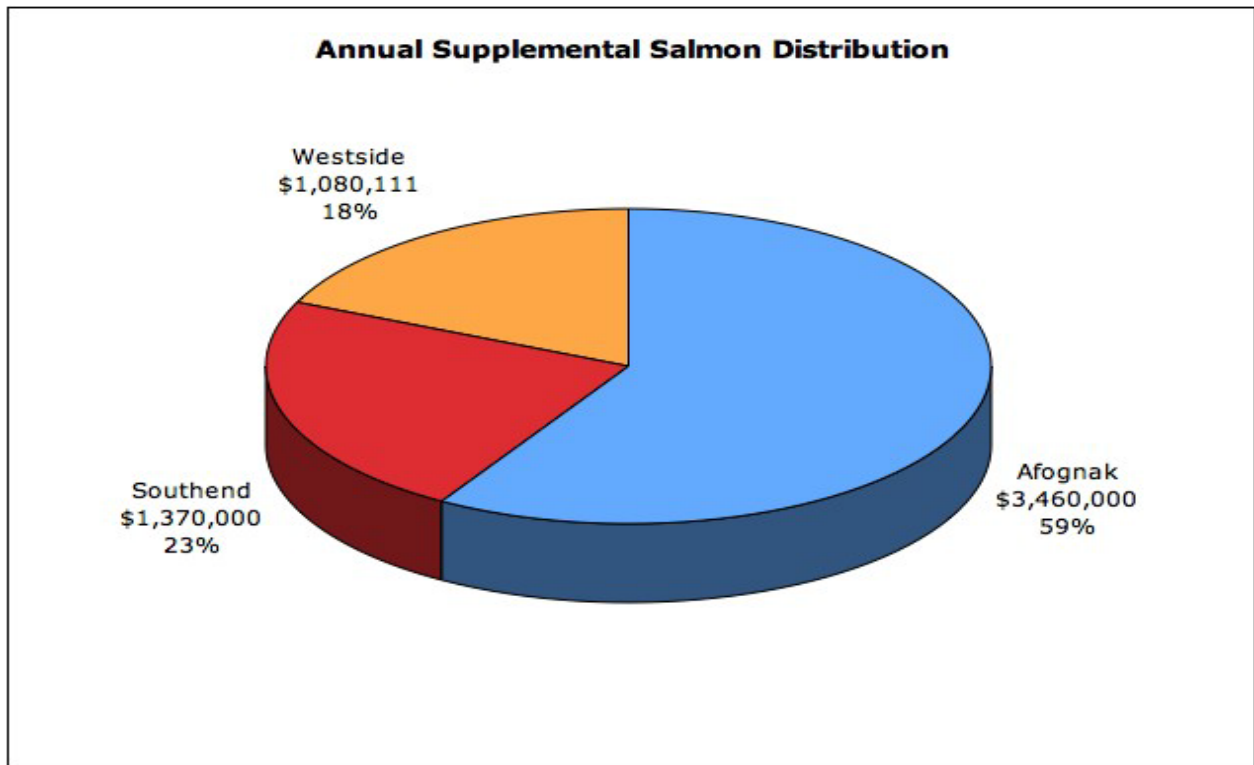


Figure 3. Distribution of average annual revenue generated by commercial harvest of supplemental salmon production in the KMA, by district 1993-2008.

## **1.3 Events and Policies Influencing the KCSP**

### **1.3.1 Significant Events that Influenced Implementation of KCSP Goals**

Political and economic changes have significantly affected the supplemental stocking of fish for enhancement and rehabilitation purposes. In the early 1970s, salmon runs were generally weak throughout Alaska. This was believed to be a result of pre-statehood federal management coupled with the environmental conditions of recent years. This prompted the 1971 State Legislature to authorize the creation of a new division in the Department of Fish and Game. The Fisheries Rehabilitation, Enhancement and Development division (FRED) was charged to work specifically on the issues of weakened runs and ways in which to increase or supplement adult salmon returns. In 1974, the legislature also created the Private Nonprofit (PNP) hatchery program. In 1974 and again in 1980, Alaska voters passed general obligation bonds to fund the construction of public enhancement and rehabilitation hatcheries. These three actions were the foundation for the formation of the RPTs, RAAs, and Comprehensive Salmon Plans throughout the state.

By the 1990s salmon runs were generally robust; however, salmon prices had declined dramatically. Political support and budgets for public, commercial hatcheries and further enhancement efforts had declined. Operation of many public facilities was contracted to the regional aquaculture associations and other PNP operators. These organizations are largely dependent on salmon enhancement tax and cost-recovery revenues to fund their operations. Locally, KRAA took over the operation of KBH and PCH and provided funding for some of the former FRED staff who had moved into a new section of Kodiak CF salmon research, the Bio-Rehab section. This was done cooperatively and incremental methods were used that led to no production loss and only a small disruption of personnel. In the last decade, the number of fishermen participating in the Kodiak commercial fishery has declined, permit values have fallen dramatically, and fewer limited entry permits have been fished. Declining revenues from commercial fisheries and for the SET led to a contraction in budgetary allocation for new or expanded projects by KRAA. The core operations for the Association, KBH, and PCH have retained funding, but the scope of projects of the ADF&G Bio-Rehab section has been reduced. As a result, some new or expanded enhancement projects identified by the KCSP Phase II revision have not been addressed for a number of years.

During the past 25 years, PNP and legislatively-mandated state hatcheries were built from Southeastern Alaska to the Arctic. State and private interests operated a total of 37 hatcheries: 6 in Cook Inlet, 22 in Southeast Alaska, 7 in Prince William Sound, and 2 in the Kodiak Management Area. Although the original KCSP (Phase I, 1984) called for seven hatcheries in the KMA, ADF&G and KRAA took a more conservative approach. Kitoi Bay Hatchery has incrementally expanded production over time, and in 1990, KRAA built PCH to facilitate stocking of barren lakes with sockeye salmon. Projects such as lake nutrient enrichment, temporary stream-side incubation, and improvement of existing fish passes were undertaken, primarily by FRED prior to its dissolution. The number and scope of these projects was also incremental and conservative when compared to the large and numerous facilities constructed elsewhere around the state.

### 1.3.2 Policy for the Management of Sustainable Salmon Fisheries

A major function of the Alaska Board of Fisheries (BOF) is allocation of fish among user groups. The BOF directs ADF&G to implement measures that affect salmon harvest, seasons, and locations. In June 2001, the BOF approved a guiding policy - the Policy for the Management of Sustainable Salmon Fisheries: 5AAC 39.222. Among other things, the policy clarified the role of the BOF with regard to salmon rehabilitation and enhancement; it helps guide the BOF and ADF&G in addressing new or expanding fisheries, salmon rehabilitation, salmon enhancement, habitat degradation, mixed stock fisheries, and harvest guidelines. The policy also includes a list of fishery and management objective definitions.

In 5AAC 39.222 (c)(3)(J) and (K), the policy states “proposals for salmon fisheries development or expansion and artificial propagation and enhancement should include assessments required for sustainable management of existing salmon fisheries and wild salmon stocks” and “plans and proposals for development or expansion of salmon fisheries and enhancement programs should effectively document resource assessments, potential impacts, and other information needed to assure sustainable management of wild salmon stocks”. It is important to note that the primary role of the KRPT is planning, and the BOF has placed a strong emphasis on the need for compatibility of enhancement projects and protection of wild stocks.

### 1.3.3 Kodiak National Wildlife Refuge, Revised Comprehensive Conservation Plan

The U.S. Fish and Wildlife Service (USFWS or the Service) administers approximately 1.6 million acres of land and water in the Kodiak Archipelago, including the southwestern two-thirds of Kodiak Island, as the Kodiak National Wildlife Refuge (KNWR or the Refuge). Many of Kodiak’s most productive salmon systems are located within the KNWR.

The KNWR Revised Comprehensive Conservation Plan (CCP) was approved in February 2007 (USFWS 2007). This CCP was developed over a period of several years and provides management direction for activities and uses of the refuge, goals and objectives for refuge programs, and compatibility determinations for uses of the refuge for the next 15 years (G. Wheeler, KNWR Refuge Manager, USFWS, Kodiak; personal communication). The KNWR Revised Comprehensive Conservation Plan states:

- “The purposes for which the Kodiak National Wildlife Refuge is established and shall be managed include (i) to conserve fish and wildlife populations (and) habitats in their natural diversity, including, but not limited to, Kodiak brown bears, salmonids, sea otters, sea lions and other marine mammals and migratory birds; ...” (Section 1.2.2; page 1-5);
- “The mission of the Service is “working with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people (602 FW 1.6W).” (Section 1.5.1.1; page 1-15);
- “The mission of the Refuge System is “to administer a national network of lands and waters for the conservation, management, and, where appropriate, restoration of fish, wildlife, and plant resources and their habitats within the United States, for the benefit of present and future generations of Americans [16 U.S.C. 668dd(a)(2)].” (Section 1.5.1.1; page 1-15);



- “The Refuge and the State of Alaska will cooperatively manage the fish and wildlife resources of the Kodiak Refuge.” The Master Memorandum of Understanding between the Service and the Alaska Department of Fish and Game (dated March 13, 1982) defines the cooperative management role of each agency.... In this agreement, ADF&G agreed to “recognize the Service as the agency with the responsibility to manage migratory birds, endangered species, and other species mandated by Federal law, and on Service lands in Alaska to conserve fish and wildlife and their habitats and regulate human use.” Correspondingly, the Service agreed to “recognize the right of the Alaska Department of Fish and Game as the agency with the primary responsibility to manage fish and resident wildlife within the State of Alaska.” (Section 2.2.8.1; page 2-49);
- “Goal 7: Conserve the abundance of natural salmonid populations for continued human and wildlife use, and ensure the diversity of species as indicators of the health of the Refuge’s ecosystem.” (Section 2.1; page 2-19);
  - “7.1 In collaboration with ADF&G, annually monitor escapement of salmon by means of aerial surveys and weir counts to ensure adequate escapement for future production and to support important commercial, recreation, and subsistence fisheries.” (Section 2.1; page 2-19);
  - “7.7 Continue to require ADF&G to implement monitoring programs for Kodiak Regional Aquaculture Association (KRAA) enhancement projects conducted on the Refuge...” (Section 2.1; page 2-21);
  - “7.8 Through a collaborative effort with ADF&G, evaluate situations when fish populations are determined not to be meeting escapement goals or management targets. When weak stocks are identified ... develop strategies to improve and stabilize runs, which may include implementation of specific management actions and research or rehabilitation projects, while maintaining genetic integrity of these fish populations.” (Section 2.1; page 2-21);
  - “7.11 Through a coordinated effort with ADF&G, evaluate salmon spawning and rearing habitat to determine productivity of salmon producing systems within the Refuge.” (Section 2.1; page 2-22);
- “Separate compatibility determinations addressing specific proposals will be required for state management activities that propose... fishery restoration, fishery enhancement... or any other unpermitted activity that could alter Refuge ecosystems.” (Section 2.2.8.1; page 2-49);
- “Fishery restoration is any management action that increases fishery resources to allow full use of available habitat or to reach a population level based on historical biologic data. Although the goal of restoration is self-sustaining populations, situations may exist in which some form of fishery management or facilities could continue indefinitely. ADF&G, in cooperation with the Kodiak Regional Aquaculture Association and the Refuge, has undertaken several restoration projects on Kodiak Refuge, including temporary actions such as the fertilization of Karluk Lake to restore zooplankton productivity for sockeye salmon and a temporary incubation facility in the upper Thumb River (Karluk drainage) to restore sockeye productivity. The Refuge will continue to

support similar restoration actions provided they are compatible with Refuge purposes and the Refuge System mission.” (Section 2.2.11.10; page 2-62);

- “Fishery enhancement is any management action or set of actions that is applied to a fishery stock to supplement numbers of harvestable fish to a level beyond that which could be naturally produced based on a determination or reasonable estimate of historic levels. This could be accomplished by stocking barren lakes, providing access to barren spawning areas (fish passages), constructing hatcheries, outstocking in productive systems, or fertilizing rearing habitat... Proposals for fishery enhancement projects will be subject to the provisions of NEPA regulations, an ANILCA Section 810 determination, and a compatibility determination. Only temporary fisheries enhancement facilities may be authorized in Minimal management areas.” (Section 2.2.11.11; page 2-62).



Figure 4. Airdrop of sockeye salmon at Spiridon Lake.

## **Chapter 2**

### **Status of Phase II Revision Strategies, Projects and Facilities**

#### **2.1 Overview**

The overall goal of the long-term opportunities of the KCSP Phase II Revision was achievement of improved fisheries during the life of the plan. The plan identified three major sub-goals as means of contribution to improved fisheries: 1) production and harvest; 2) research and data-gathering; and 3) policy/management. Review of what projects and achievements have occurred since the Phase II Revision was written was important to development of the Phase III, 2010 to 2030, plan. Information regarding which facilities, projects, and strategies were advanced, completed, or were still ongoing, and which were not acted upon, had significant bearing on the direction of the Phase III plan.

#### **2.2 Long Term Opportunities, KCSP Phase II Revision**

The Phase II Revision identified projects by fishing district, level of priority (high or low) and by species (Appendix C). Early in the life of the plan, and prior to the elimination of FRED, ADF&G was able to complete numerous investigations for potential projects. However, due to funding limitations, those investigations were somewhat curtailed when KRAA took over most enhancement responsibility. During this period, ADF&G prioritized funding for the maintenance of weirs for escapement enumeration and harvest management, while KRAA focused on development and conservative expansion of existing projects. Where existing infrastructure existed, increased production and enhancement was pursued, such as expansion of KBH coho salmon enhancement or the Kodiak road-system king salmon enhancement.

#### **2.3 Five-Year Plan, KCSP Phase II Revision**

In addition to long-term plans (10 years plus) for new facilities, project, and strategies, the KCSP Phase II Revision included a Plan of Action for projects to be implemented within a five-year period (Appendix D). Those projects were also identified with a particular agency for initiation and completion

As with the long-term projects identified in the previous section, these projects are listed and labeled according to their status and/or completion. It is remarkable to note that of the 39 projects identified by the five-year plan, only two were never undertaken and two others were not completed. Thirty-two of the high priority projects slated for initiation or continuation during this period were completed or are ongoing projects in the KMA.

## 2.4 Overview by Species

### 2.4.1 Sockeye Salmon Enhancement

Enhancement and rehabilitation of sockeye salmon has been the most extensive and intensive of all salmon species for the KMA. Programs have included adult salmon transplants (Frazer and Akalura Lakes) and egg plants (Frazer, Karluk, Laura Lakes) as well as fry, fingerling, pre-smolt and smolt supplemental production. Fish passes were built, improved, repaired, and maintained during the life of the previous plan, and planning and implementation of lake fertilization was conducted, along with accompanying limnological studies.

ADF&G salmon research and management plans, coupled with the adult salmon counting weirs, are primarily focused on sockeye salmon. Of the tasks identified in the KCSP Phase II Revision, 50% were focused on sockeye salmon management or enhancement. Sockeye salmon remains the species valued at the greatest price per pound, and is the highest priority to both commercial and subsistence fishermen. The most up-to-date technical report on enhancement activities in the KMA (Schrof and Honnold 2003) supplies details of sockeye salmon enhancement and rehabilitation through 2002. Sockeye salmon enhancement and rehabilitation projects provided an average (1999-2008) of 551,000 sockeye salmon per year to the common property harvest in the KMA (Table 3).

Pillar Creek hatchery was developed in the early 1990s to function as a central incubation facility with the goal of stocking barren lakes with juvenile sockeye salmon. PCH conducts remote broodstock collection and egg-take operations for both early- and late- run sockeye salmon. The resulting juvenile sockeye salmon are stocked into lakes on Afognak and Kodiak Islands and contribute to commercial and subsistence fisheries. The operations at PCH have helped develop successful terminal harvest fisheries at Telrod Cove (Spiridon Lake stocking), Foul Bay (Hidden Lake stocking), and Waterfall Bay (Big and Little Waterfall Lake stocking). The stocking of Crescent Lake near the village of Port Lions has created a very successful run of salmon that has been important to local subsistence fisheries, taking pressure off of Barabara and Afognak lakes sockeye salmon runs that declined significantly in the 1990s. PCH sockeye salmon egg-take goals have ranged from 300,000 to 3.4 million early-run sockeye (Afognak Lake) eggs and from about 500,000 to 9.1 million late-run sockeye (Upper Station, Little Kitoi Lake, Saltery Lake) eggs.



Figure 5. Pillar Creek Hatchery Raceways

#### 2.4.2 Pink Salmon Enhancement

Pink salmon supplemental production and enhancement in the KMA has been conducted primarily on Afognak Island. The principal program, onsite supplemental pink salmon production at the KBH, is one of the oldest continuous programs of pink salmon fishery enhancement in the state. In the 1970s, research on incubation density, artificial substrates, and release strategies was carried out with extensive fry marking (coded wire tagging) and adult tag recovery programs. The Kitoi Incubation Box was developed during this period and is currently widely used throughout the state. Kitoi Bay was also the first site to utilize net pen rearing for pink salmon fry in order to enhance early growth and marine survival; this idea has changed the statewide strategy for supplemental pink salmon production.

Upon emergence from the incubator substrate, pink salmon fry move volitionally into saltwater net pens in Kitoi Bay and are ready to begin feeding. After several weeks of supplemental feeding by hatchery personnel they are released into the bay. Saltwater releases of pink salmon fry have ranged from 447,000 in 1974 to current annual releases of approximately 160 million fish. Annual returns have ranged from 2.1 to 13.6 million, with an annual average harvest of 6.5 million pink salmon from 1999 to 2008. The KBH pink salmon production program has been a

large economic success, and it provides for a popular commercial fishery close to the numerous processing facilities in the City of Kodiak.

The KBH operates with funding from a cost-recovery fishery in Kitoi Bay. During the Exxon Valdez oil spill a special harvest fishery was conducted in Kitoi Bay. Those funds were used exclusively to operate the KBH from 1989 through 2002; however, beginning in 2003, additional funds were needed to offset hatchery operating costs and to prevent the complete drawdown of reserve funds for the facility. During the period 2003 to 2008, the cost-recovery fishery has captured 31% of the total commercial pink salmon harvest returning to Kitoi Bay (Table 4). The percentages are higher for the weaker even-year harvests.

In addition to the pink salmon enhancement at KBH, three fish passes were installed on Little Waterfall Creek to allow colonization of the upstream portion of the stream. Pink salmon also utilize fish passes installed at Seal Bay, Portage Creek, and Paul’s and Laura Lakes on Afognak Island, as well. These fish passes are opened in the spring to allow escapement and closed in the fall after spawning is complete. They are not currently funded for escapement monitoring or regular maintenance.

Table 4. Commercial common property and cost-recovery pink salmon harvest from the Kitoi Bay Hatchery, 1999-2008.

<b>Kitoi Bay Hatchery Commercial Pink Salmon Harvest</b>			
<b>Year</b>	<b>Common Property</b>	<b>Cost Recovery</b>	<b>Cost Recovery Percent of Total</b>
1999	4,057,000	0	0%
2000	3,660,000	0	0%
2001	13,127,000	0	0%
2002	6,697,000	0	0%
2003	3,953,000	1,580,000	28%
2004	2,075,000	1,887,000	47%
2005	10,964,000	2,640,000	19%
2006	1,841,000	2,317,000	55%
2007	6,210,000	1,675,000	21%
2008	423,000	1,695,000	80%
<b>2003-2005 Average</b>	4,244,000	1,965,000	31%

### 2.4.3 Chum Salmon Enhancement

A chum salmon production program was initiated at KBH in 1982. Sturgeon River early-run chum salmon was selected as a brood source for incubation and release of juvenile chum salmon at Kitoi Bay. These early-returning chum salmon (late May through mid-June) were intended to provide early-season fishing opportunity and to lengthen the fishing season for the seine fleet that utilizes returns to Izhut and Kitoi Bays.

Incubator water for chum salmon is purified by UV treatment to eliminate the potential for disease and contamination problems. Chum salmon fry are moved from incubation to saltwater net pens where they are reared and then released directly into Kitoi Bay. The chum salmon program was expanded in the early 2000s, with the addition of new incubators that utilize less space and water. In the period from 1999 to 2008, releases have ranged from 0.4 to 23.5 million juvenile fish, and adult returns have ranged from 89 to 466 thousand. The average annual commercial harvest at KBH is 203,000 chum salmon per year for the 1999-2008 period.



Figure 6. Kitoi Bay Hatchery

#### 2.4.4 Coho Salmon Enhancement

Coho salmon are incubated and reared at both PCH and KBH for enhancement of subsistence, sport, and commercial harvests. PCH coho salmon (Buskin River stock) are stocked as fingerlings into as many as 12 lakes and streams on the Kodiak road system. Releases have ranged from 41 to 117 thousand juvenile fish. Returns are difficult to assess as they mingle with coho produced in area river systems, and the harvest is typically by Kodiak subsistence and sport fisheries where harvest estimates are based on voluntary surveys or permit reporting.

Kitoi Bay Hatchery annually stocks approximately 165,000 coho salmon (Big Kitoi Creek stock) fingerling into Crescent Lake near the Village of Port Lions and 30,000 pre-smolt into Katmai Lake near the village of Ouzinkie. These stocking projects contribute primarily to subsistence and sport fisheries in those areas. The larger portion of KBH coho salmon are reared at the hatchery for an additional year to “one-check” smolt and released into Kitoi Bay. Resulting returns contribute to commercial harvest and broodstock. Releases have ranged from 33 thousand to 1.1 million juvenile fish, and returns have ranged from 117 to 301 thousand fish to the commercial fishery. From 1999 to 2008, the average annual harvest at KBH has been 163,000 coho salmon.

#### 2.4.5 King Salmon Enhancement

Although the PCH/ADF&G SF king salmon enhancement program was initially the smallest in terms of eggs taken each year, it has been enthusiastically supported by sport and subsistence harvesters from Kodiak and outlying villages. The recent (2006 to present) weak returns of king salmon to the Karluk and Ayakulik Rivers have focused the attention of native land owners and federal and state resource managers on the status of these stocks and the potential need for rehabilitation.

Beginning in 2000, the Kodiak road-system king salmon enhancement program collected broodstock and conducted egg takes on the Karluk River. Eggs were incubated at PCH, and the resulting juvenile king salmon were imprinted and released at Monashka Creek. Adult king salmon began returning to Monashka Creek, and since 2005, all king salmon eggs for this project have been taken at Monashka Creek and reared at PCH. The program has been expanded to allow egg takes on the Monashka Creek broodstock totaling 450,000 eggs, and juvenile king salmon are imprinted and released at Monashka Creek and the American and Olds Rivers. Conservatively estimated adult returns have ranged from 300 to 400 fish from 2005-2008, though these numbers will continue to increase as adult returns are realized on the American and Olds Rivers.



## Chapter 3

### Updating the Kodiak Comprehensive Salmon Plan, 2007-2010

#### 3.1 Public Participation

To gather information from the public for the third phase of the KCSP, the KRPT created a public survey questionnaire (Appendix E). The purpose of the survey was to determine the preferences of individuals and various user groups for each salmon species. The questionnaire further solicited respondents' priorities and opinions on how to increase salmon production by species. The survey requested opinions and suggestions on salmon management, research, enhancement, rehabilitation, and habitat activities.

The surveys were first made available to the public in April 2009. Bulk mailings distributed surveys to all Kodiak Management Area commercial salmon permit holders, Kodiak commercial sport fish guides and current Kodiak subsistence permit holders. Further mailings went to local city and village governments and tribal organizations. Additionally, survey questionnaires were made available to the general public at the Kodiak KRAA office, ADF&G offices and local vendors.

Between March and September 2009, public meetings were held in Kodiak, Ouzinkie, Port Lions, Larsen Bay, Akhiok, Moser Bay, and Old Harbor. The purpose of the Comprehensive Salmon Plan was explained, along with the document's function and the role it takes in salmon management, enhancement, and rehabilitation in the KMA. The process by which the KCSP was created and the importance of public input was emphasized throughout the course of these meetings. Public survey questionnaires were distributed to all who attended these meetings, and the different elements of the questionnaires were discussed in detail, along with current status of KMA salmon resources, individual's concerns, desires, and recommendations for future actions. The open period for this phase of public input was extended twice to encourage further input from the public. The final surveys were accepted on October 31, 2009.

#### 3.2 Public Survey Questionnaire

The KRPT distributed well over 1,000 surveys, and received 453 completed surveys from the public. The number of respondents, though small, was encouraging as it was greater than the number of respondents for Phase I and Phase II Revision combined. The KCSP Phase I survey generated 354 completed surveys, and the Phase II Revision received only 65 survey responses.

Survey participants were asked to supply basic information regarding where they lived and if, and in what manner, they utilized salmon resources. Distinctions were made for subsistence, commercial, and sport use, and the questionnaire allowed an individual to make multiple selections. Respondents were also asked if they held a commercial salmon fishing permit or if they worked as commercial fishing crew or as a salmon processor, either as a current or a former permit holder, crewman, or processor, or if they guided sport fishermen. For each category of resource use, respondents were asked how long they had participated in any or all of these activities.

It is commonly accepted that many people participate in multiple fisheries in the KMA. Many commercial fishermen are avid sport fishermen and subsistence users as well. Local residents that are not employed by the fishing industry may still participate in sport and subsistence fisheries. For this reason, respondents were given the opportunity to prioritize the importance of each of the 5 species of Pacific salmon for each fishery. With regard to these preferences, survey respondents were also asked to rank their priorities, by species, for increased production in the KMA.

Finally, survey participants were asked to offer their opinions regarding modifications or changes to current salmon stocking or enhancement projects and to state their preference for methods by which to increase Kodiak salmon production, by enhancement projects, rehabilitation of weak stocks, management of salmon and fisheries, research, or habitat improvement or protection. Survey respondents were solicited for their ideas on projects they felt important to either a specific district or the KMA as a whole.

### **3.3 Public Survey Results**

#### **3.3.1 General Survey Results by User Group**

The majority of survey respondents, 69%, live in Kodiak or on the Kodiak road system; however, surveys were returned from most of the villages on Kodiak, other communities in Alaska and from out of state. It should be noted that though the total of village responses were few in number, and therefore, may make up a small percentage of the overall number of surveys returned, in some cases they represent a significant portion of those smaller community's population.

Not surprisingly, survey responses indicated that most respondents considered themselves part of two or more user groups. These individuals participate in Kodiak salmon harvest through multiple fishing methods (for example, many commercial salmon fishermen were also subsistence harvesters and some also identified themselves as sport fishermen). Twenty-seven percent of the survey respondents indicated they harvested salmon commercially, while 80% of the survey respondents listed sport harvest interest, and 92% indicated participation in subsistence harvest (Figure 7). These numbers provide some obvious overlap.

In a similar outcome to earlier KRPT surveys, the results of the 2009 survey indicated continued, strong support for sockeye salmon as a high priority species which is favored for increased production; however, the desire to increase king salmon surpassed sockeye salmon with both subsistence and sport users. Comparisons of survey responses made by Kodiak residents living on the road system versus those living in villages yielded some differences regarding preferred species: village resident's preference showed a balance of interest in the increased production of coho, pink, and chum salmon, while Kodiak Road system residents held relatively low interest in increasing these species.

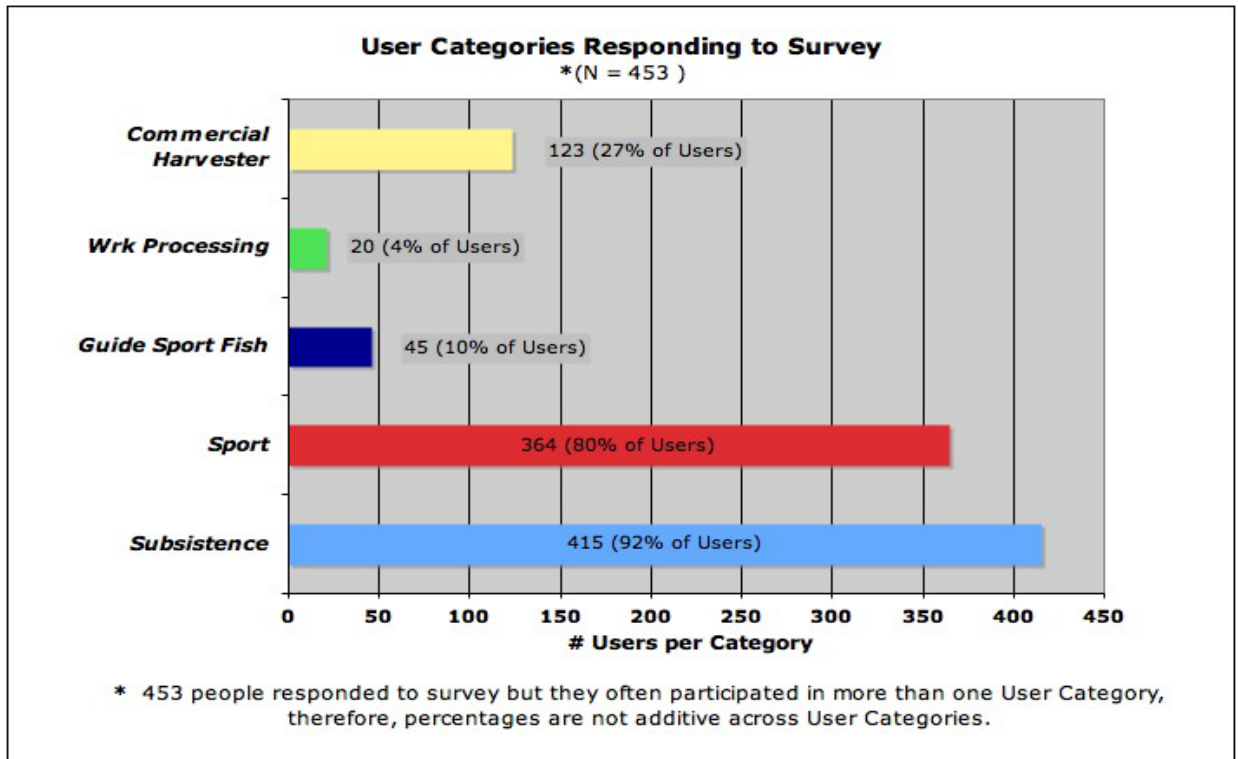


Figure 7. Public survey results: respondent user group affiliation, 453 respondents, multiple category selections possible.

### 3.3.2 Commercial Harvest Respondents, Survey Results

The 2009 KRPT public survey questionnaire asked those who utilize Kodiak’s salmon resources to list their relative priority for fishing method (subsistence, commercial, or sport fishing) and to rank which species they preferred to catch with respect to each method. Out of 453 respondents, 27.2% (123 of 453) indicated that they participated in commercial salmon fishing within the KMA either as a permit holder or crewmember. The majority of these respondents (57%) felt that sockeye salmon were the preferred species for harvest (Figure 8).

Survey respondents were also asked to rank their preference, by species, for increased salmon production in Kodiak area fisheries. Fifty percent (50%) of the respondents who fish commercially preferred to increase Kodiak sockeye salmon, though 22% of the respondents felt that increasing king salmon was a higher priority (Figure 9).

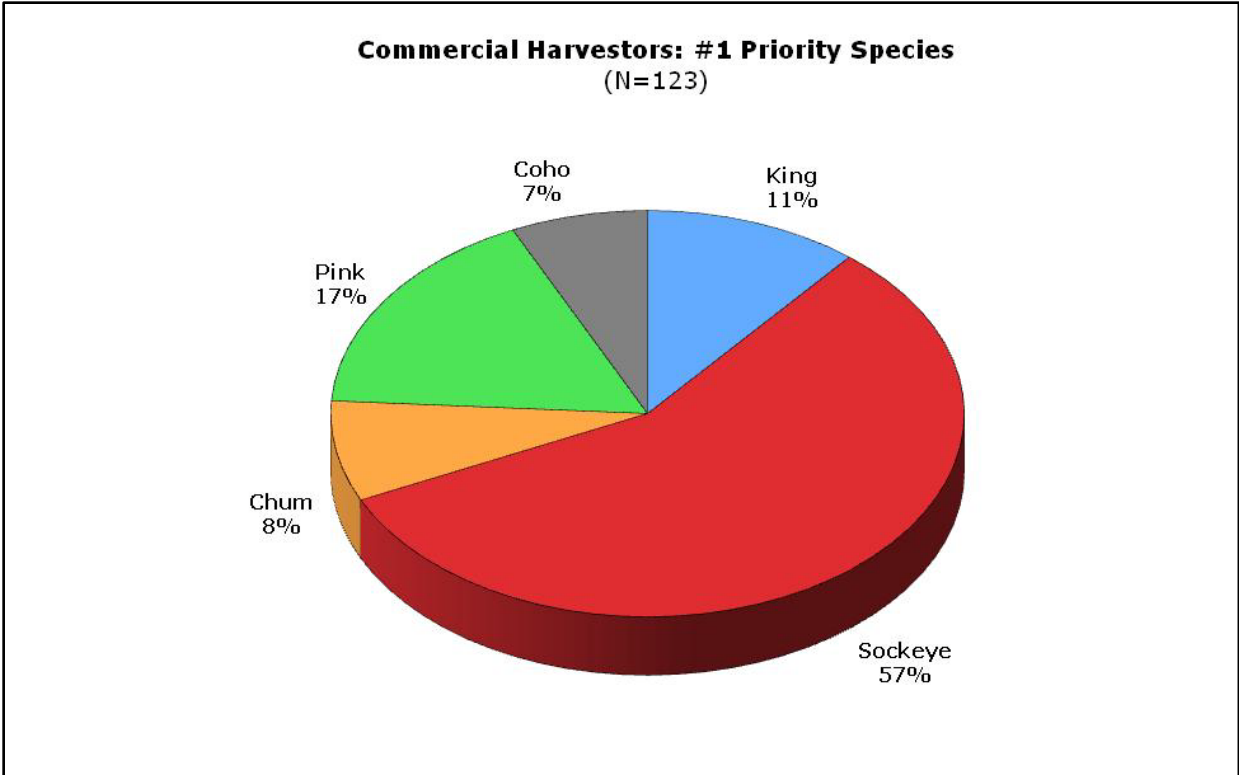


Figure 8. Preferred harvest species by respondents with a commercial fishing priority.

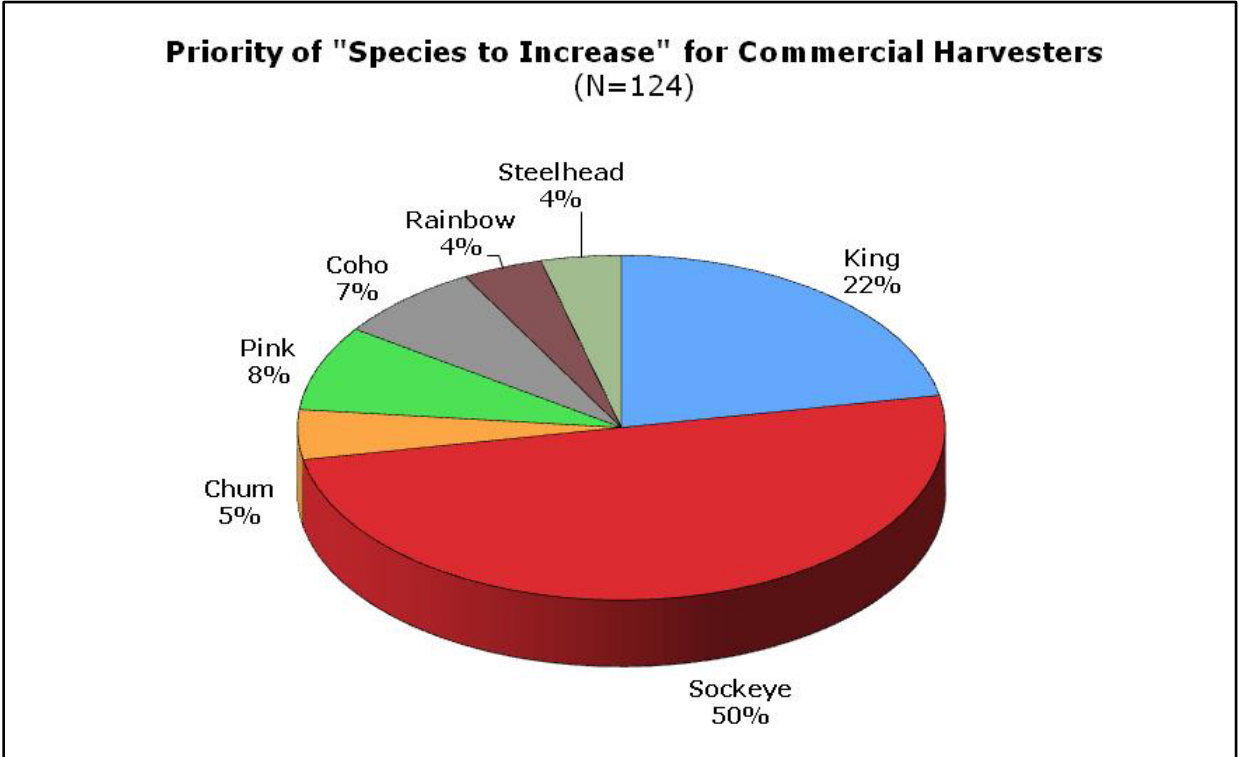


Figure 9. Commercial harvest: favored species for increased abundance.

Over half (51%) of survey respondents who indicated they were involved in Kodiak commercial salmon fishing felt that enhancement (31%) and rehabilitation (21%) were the preferred methods by which to sustain or increase Kodiak salmon numbers (Figure 10). This indicates widespread support for existing enhancement activities and further interest in increased production in the KMA. In spite of this support, greater than one-third of those involved in commercial fisheries (36%) favored management and research (24% and 12% respectively) methods to sustain and increase salmon production in the KMA. Twelve percent of respondents felt that habitat protection was the preferred method by which to sustain or increase production (Figure 10).

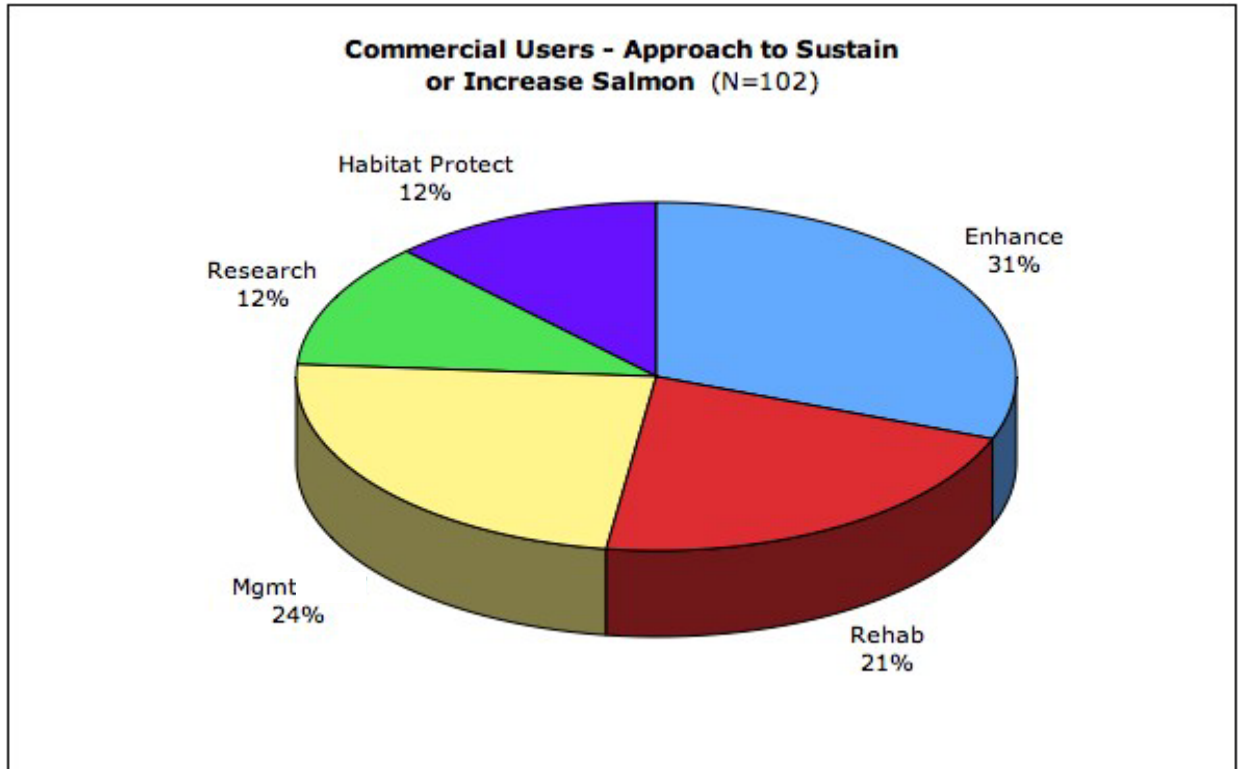


Figure 10. Commercial salmon industry respondents preferred methods to sustain or increase salmon production.

### 3.3.3 Subsistence Harvest Respondents, Survey Results

Participants in the 2009 KCSP survey indicated that, 91.7 % (415 of 453) of respondents participated in subsistence salmon fishing within the Kodiak area. The majority of these respondents (59%) felt that sockeye salmon was the preferred species for subsistence harvest (Figure 11). However, they were split in their desire to increase salmon production: thirty-seven percent of respondents preferred increased sockeye salmon production, while 36% favored king salmon increases (Figure 12) over sockeye.

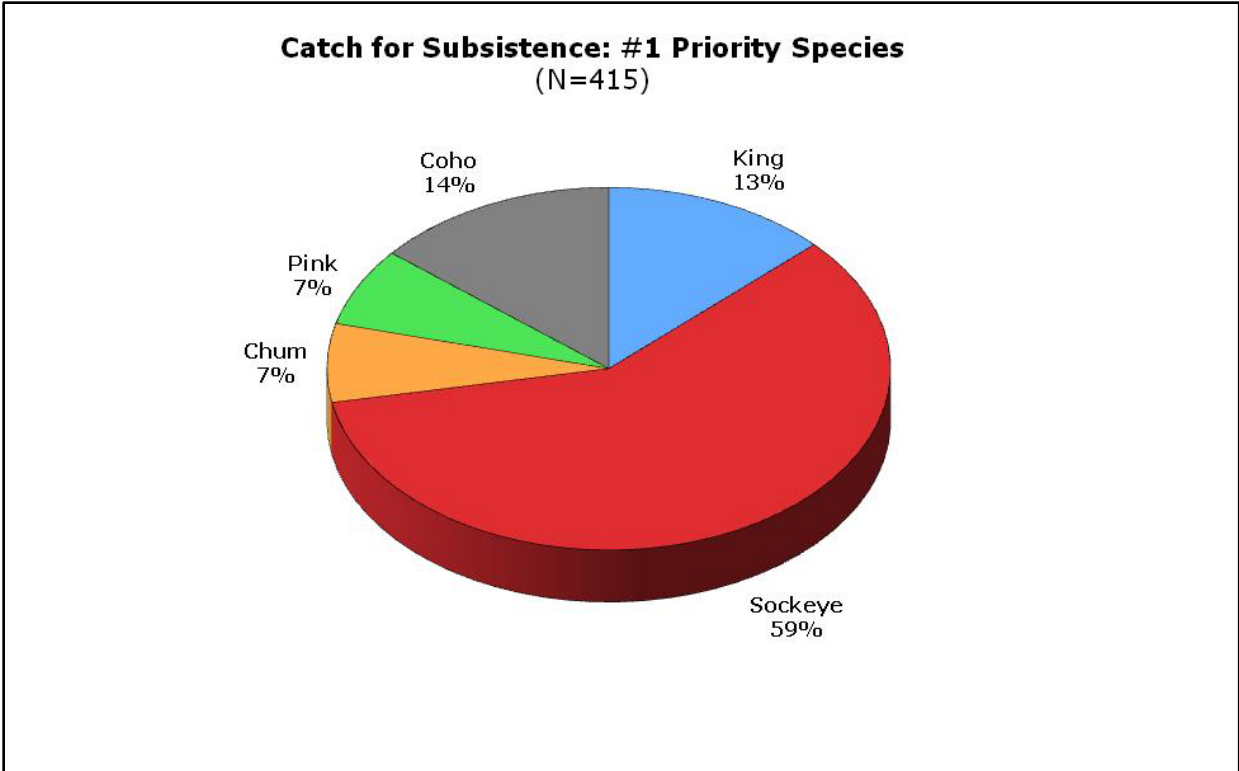


Figure 11. Subsistence harvest relative catch priority by species.

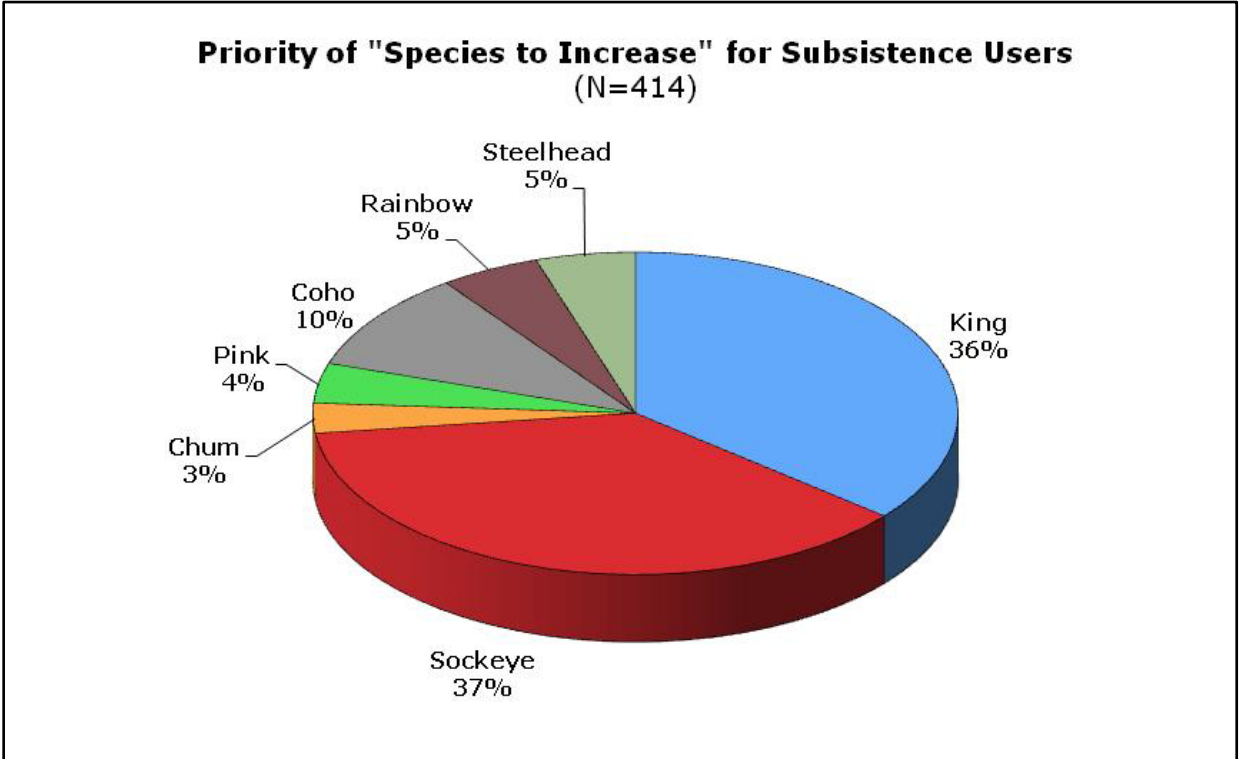


Figure 12. Subsistence harvest: favored species for increased abundance.

With regard to the preferred methods for sustained or increased salmon production, subsistence permit holders showed a split similar to respondents with commercial interest. Survey responses indicated that 50% favored enhancement and rehabilitation (29% and 21%, respectively) as the preferred method while 34% favored management and research (22% and 12%, respectively). Sixteen percent felt that habitat protection was the best way to sustain or increase salmon abundance in the Kodiak area (Figure 13).

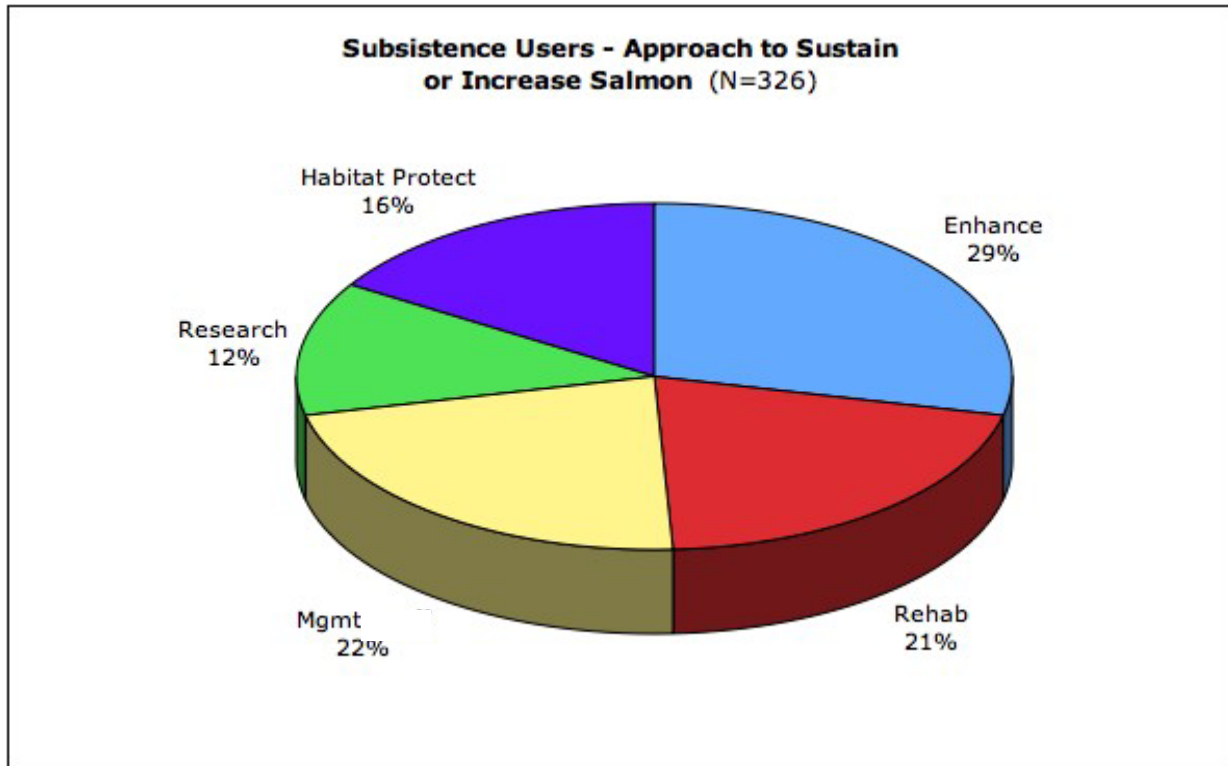


Figure 13. Subsistence harvest respondents preferred methods to sustain or increase salmon production.

### 3.3.4 Sport Fish Harvest Respondents, Survey Results

More than 80% of the KCSP survey respondents indicated that they participate in salmon sport fishing within the Kodiak area. In a significant deviation from subsistence and commercial users, more sport users indicated that king (48%) or coho salmon (27%) were the priority species for sport harvest, while smaller number of respondents (17%) felt that sockeye salmon was the preferred species for sport harvest (Figure 14).

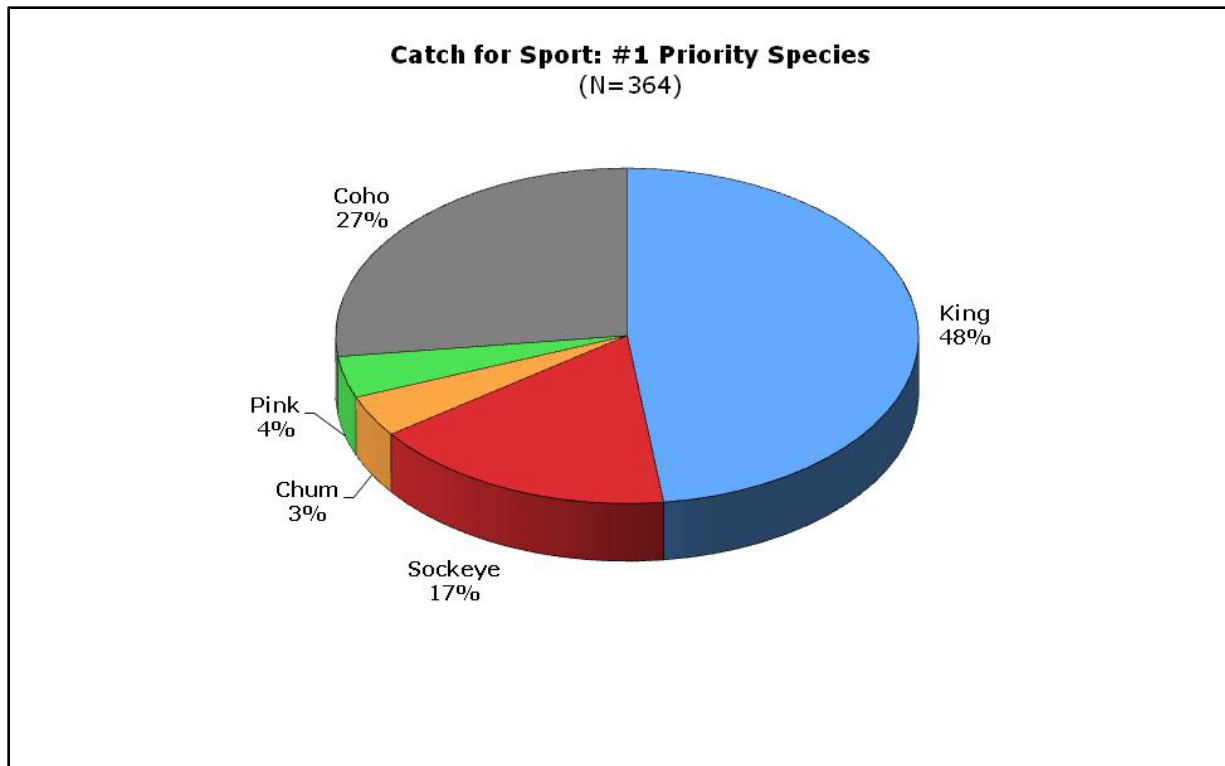


Figure 14. Sport harvest relative catch priority by species.

Sport harvesters were also split in their desire to increase salmon by species, with 40% wanting king increases and 35% wanting sockeye salmon increases (Figure 15). Likewise, there was a familiar breakdown regarding the preferred method to sustain or increase salmon abundance in the KMA. Much like respondents in the commercial and subsistence categories, those who replied under the sport fishing category indicated enhancement and rehabilitation (28% and 21%, respectively) as the top choices followed by management and research (23% and 13%, respectively), and a smaller portion (15%) felt that habitat protection was the best way to sustain or increase salmon numbers in the Kodiak area (Figure 16).



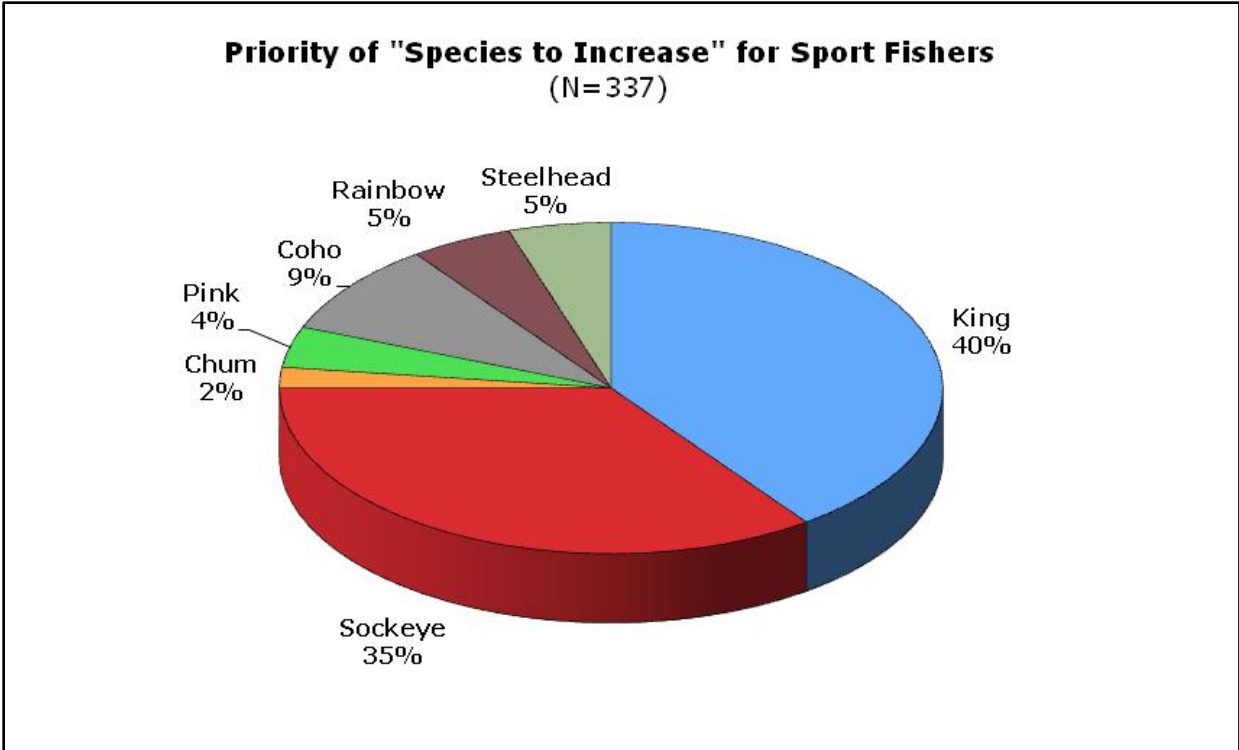


Figure 15. Sport harvest: favored species for increased abundance.

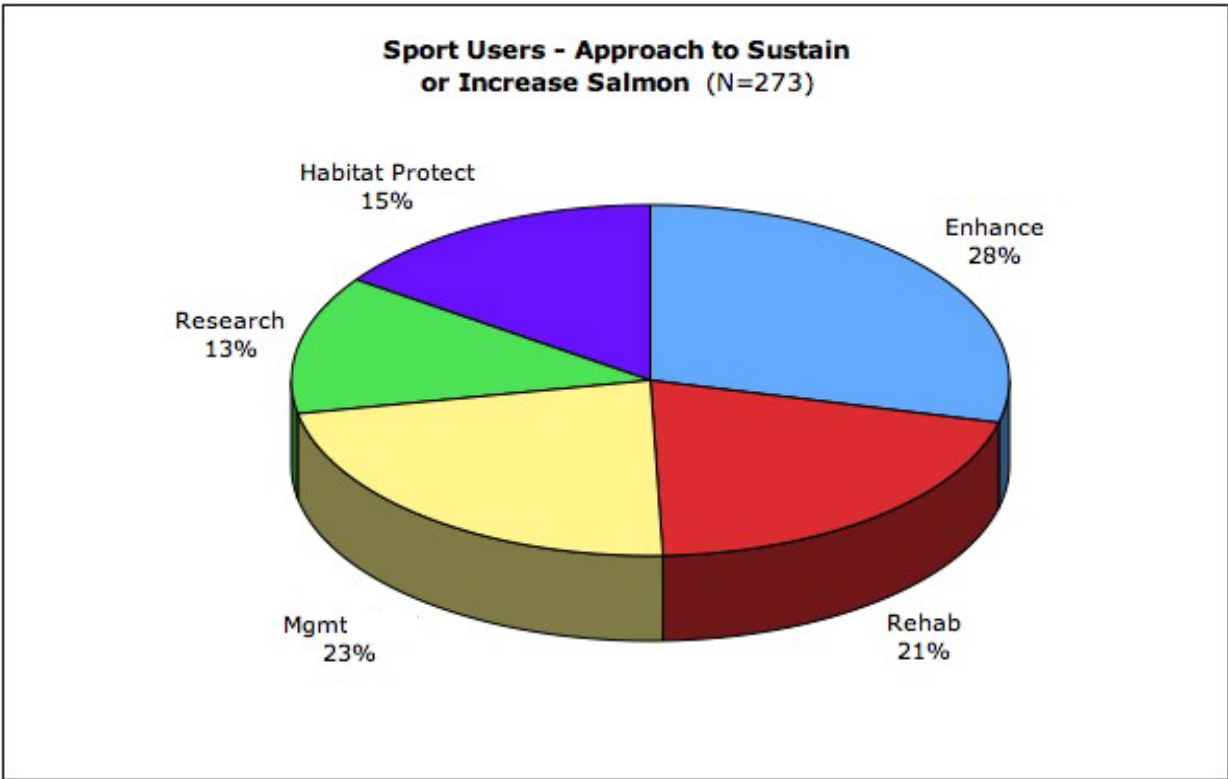


Figure 16. Sport harvest respondents preferred methods to sustain or increase salmon production.

### 3.3.5 Salmon Species Preference by User Group

In the 2009 KCSP public survey questionnaire, respondents were asked to prioritize the 5 species of Pacific Salmon by: 1) preferred species to catch, and 2) preferred species for increased abundance/production. Most respondents with commercial fishing involvement preferred to harvest sockeye salmon, followed by pink salmon, then king salmon. Though king salmon rated third in harvest preference, they gained second-place priority for increased production with those with commercial ties. It is interesting that commercial fishermen showed such high interest in and preference for increasing king salmon as they are a relatively small portion of the annual commercial harvest of the KMA (less than 2/10ths of 1%). There was a decrease in interest toward increasing pink and chum salmon, while preference for coho salmon remained the same between species to catch and species to increase.

Respondents indicating subsistence harvest of salmon showed a decided preference for sockeye salmon, which was followed by coho salmon and then by king salmon. The order of preference for increased abundance in subsistence harvest was again sockeye salmon first, followed closely by king salmon, then coho salmon. The increased interest in subsistence king salmon could, in part, be due to the fact that many subsistence harvesters are also sport harvesters and king salmon are a favored sport fish. Furthermore, the success of the PCH/ADF&G Kodiak road-system king salmon program has sparked the interest of communities all over Kodiak Island. Many see the road-system program as a model for creating king salmon returns to their communities. Finally, increased subsistence and sport interest may also reflect the declines in king salmon run strength on the Karluk and Ayakulik Rivers and the limited opportunities for sport and subsistence fishing of king salmon in the KMA in recent years.

As stated above, sport harvesters have a high preference for harvesting and for increasing the number of king salmon. Coho and sockeye salmon follow king salmon as preferred for sport harvest. But, as preferred by sport harvesters for increase, sockeye salmon are second to king salmon, and increasing coho salmon is a distant third.

### 3.3.6 Preferred Methods for Increased Salmon Abundance

While preference toward preferred harvest species and species preferred for increased production/abundance differed between user groups, there was little difference among the user groups' preferences regarding methods to be used to sustain or increase salmon numbers. When respondents were asked to rank the methods which might be employed to sustain or increase Kodiak salmon abundance, the user groups held to enhancement by a higher percentage (28-31%). Respondents also supported rehabilitation (21%), management (22-24%), research (12-13%), and habitat protection (12 to 16%) as methods to effect increases in salmon productivity and abundance. Taking the supplemental methods together, all groups viewed rehabilitation and enhancement (49-52%) as the preferred methods to increase or sustain salmon runs. All user groups also gave a consistent preference ranking as follows: enhancement 1, management 2, rehabilitation 3, habitat 4, and research 5.

It should be noted that even though rehabilitation is rated close to management in preference, there are currently no rehabilitation projects underway in the KMA. Rehabilitation projects have

been identified as high priorities for the following systems: Akalura Lake and Barabara Lake sockeye salmon and Karluk River king salmon.

### 3.3.7 Residence of Survey Respondents

In an effort to gain public input, public meetings were held in several of the villages around Kodiak Island and in the city of Kodiak. The location of residence of survey respondents and their proportion of the entire survey group is shown in Figure 17.

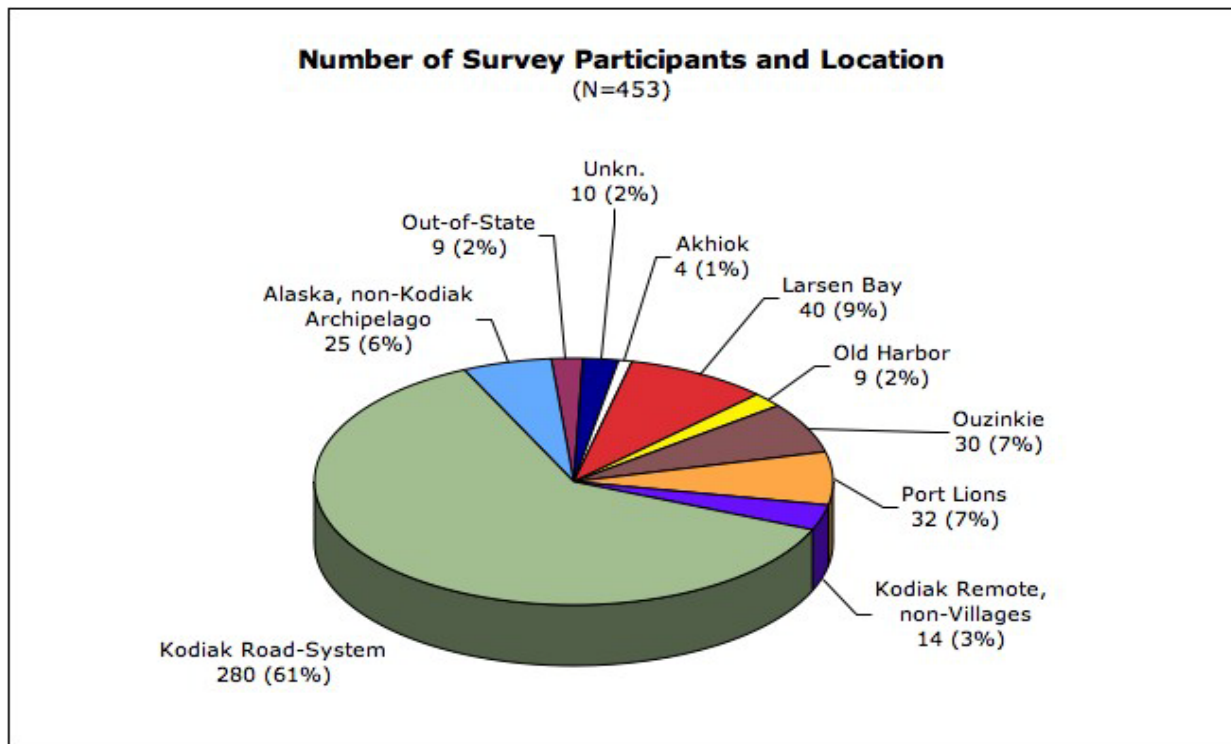


Figure 17. Residence of survey respondents.

In the United States Census 2000, the population of the Kodiak Island Borough was estimated to be 13,900 people. The combined village populations were estimated to be 840 people, or about 6% of the total population. The results of the 2009 KCSP public survey show that Kodiak village residents represent 26% of respondents. The higher participation from the villages can be attributed to the combined effort of the public meetings, along with tribal and native agency initiatives.

### 3.3.8 Preferred Salmon “Species to Increase” by Kodiak Village and Kodiak Road System Respondents

There was a significant difference in salmon species preferred for increase by Kodiak residents that live on the Kodiak road system (Figure 18) versus those from the villages (Figure 19).

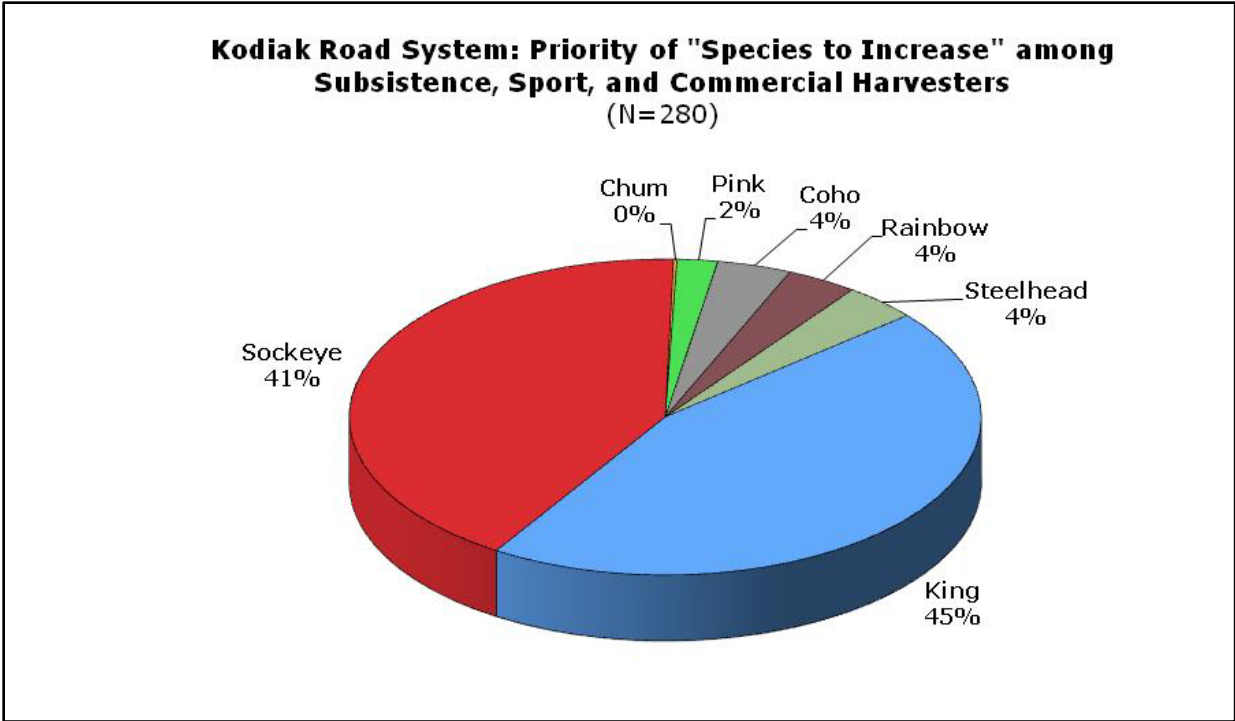


Figure 18. Kodiak road system residents: favored species for increased abundance.

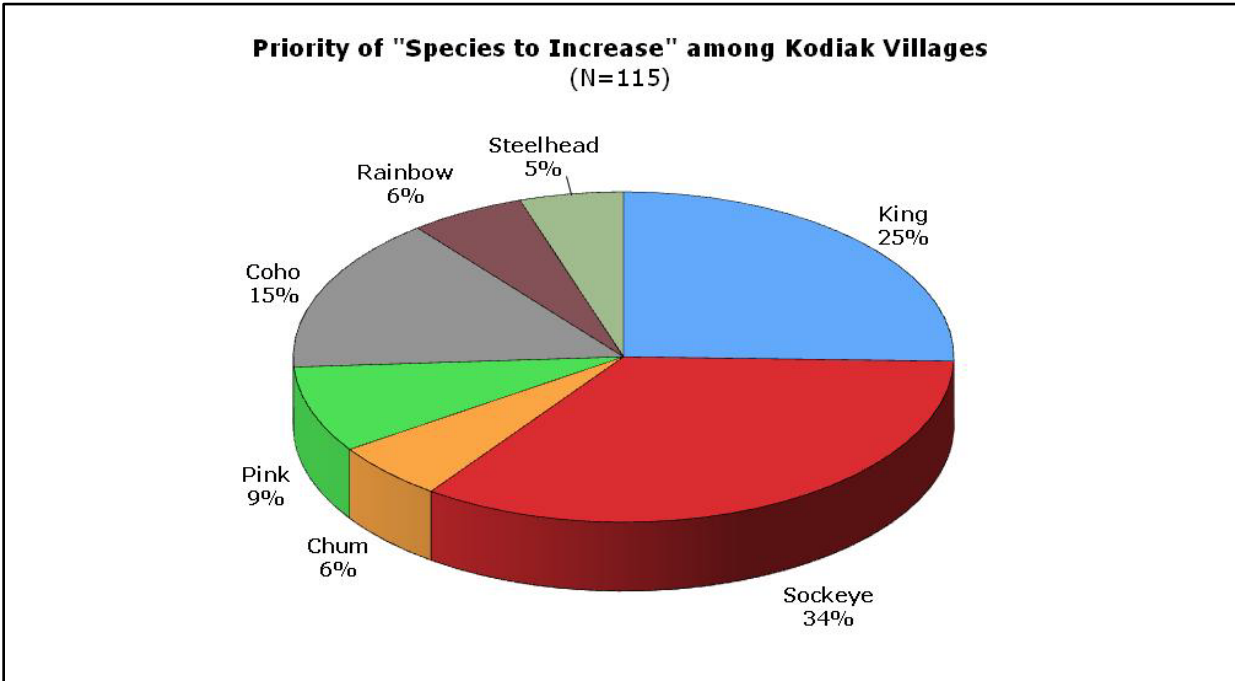


Figure 19. Kodiak village residents: favored species for increased abundance.

A high proportion of Kodiak road-system residents have a preference for increasing the numbers of king and sockeye salmon (86%), while Kodiak village residents' preferences are more balanced among the species.

### **3.4 Selected Comments by Survey Respondents**

The following comments represent a sample of those found in completed surveys. They demonstrate the local knowledge and depth of cultural significance that salmon fishing has in the Kodiak area. Their community and the number of years they've spent fishing, by type of fishing, is shown:

***Kodiak Subsistence 20 years, Sport 20 years:***

*"Science should guide the solution. Unless kings are being intercepted by Foreign fleets, science will have to figure out what is happening. So, more field work and closer monitoring of mid-ocean trawl & gillnetting."*

***Port Lions Subsistence 47 years, Sport 40 years, Commercial 20 years:***

*"Salmon are the circle of survival on Kodiak. If the fish are gone, everything else starts diving. Building up the salmon stocks are very important as a food source for everyone & everything".*

***Kodiak Subsistence 15 years, Commercial 20 years:***

*"The importance of Kodiak salmon shouldn't be ignored! The number of small businesses dependent on salmon, the number of jobs associated with salmon, both sport and commercial and the rich cultural & social aspects associated with harvesting salmon are an integral part of many peoples lives here in Kodiak. Funding from the state is very important & should be increased! I'd even support an increase in the commercial enhancement tax if there was a need."*

***Kodiak Subsistence 10 years, Sport 16 years:***

*"I would like to see continued hatchery release of Chinook & hatchery release of sockeye in the Buskin if the run continues to be low. Saltery River should be monitored by weir count for sockeye numbers to ensure a strong run. I think the state should be the major contributor to fund these projects through licensing fees & appropriation. An enhancement fee could be added to licenses. We should also look to private funding as well. A fish lottery might also be an option."*

***Bell's Flats Subsistence 15 years, Sport 30 years:***

*"Out at Pasagshak I have noticed a heavy increase in subsistence nets the last couple of years. Since there is no weir for fish counting, I am concerned too many fish are being taken out of the river. This is for reds".*

***Kodiak Subsistence 6 years, Sport 45 years:***

*"All Alaskans benefit from a strong salmon fishery. So the burden of the costs involved with maintaining or improving it should be shared by all Alaskans."*

***Kodiak Subsistence 30 years, Sport 30 years:***

*"Your actions should not come from a book. Talk to those who actually use & respect them. They will have more help for you than any government bureaucrat."*

***Kodiak Subsistence 22 years, Sport 30 years:***

*“I feel that there is abuse of the subsistence fishing in Kodiak. There are too many people that renew their subsistence license & catch more fish than they will eat. I know some people that gill net hundreds of reds every year & that is abuse. I don’t know of any family in town that eats 100+ reds every year. You should only be able to catch the amount of salmon on a one license once.”*

***Port Lions Subsistence Fisherman, 51 years experience:***

*“We need to develop more diversified sources of funding and attempt to get away from commercially funded programs. They have their importance but it is understandable they also want the bulk of the return. We need more small, local subsistence fisheries that will not be commercially harvested.”*

***Ouzinkie Subsistence Fisherman, 70 years experience:***

*“Alaska is in the forefront in protection, enhancement and Research compared to the rest of the world, but we can Always improve on what we are presently doing.”*

***Kodiak Subsistence 38 years, Commercial in youth:***

*“I have been involved in salmon fisheries since the mid 1970’s, first commercially, now as a subsistence user. I’ve seen stocks crash & revive. I’ve seen some little ones disappear altogether. If only big systems exist, the diversity of the species is compromised. The Refuge’s over zealous approach to Orange Hawkweed also has me worried. The resource doesn’t exist solely for commercial harvest. ADF&G managements need to man up & not succumb to political pressure. I have a 3 year old grandson; I want him to be able to fish as an adult. That’s his birthright. At the rate we’re going he might not get the chance.”*

***Kodiak Subsistence 25 years, Sport 44 years:***

*“It’s not just luck that we live in a state with so many natural resources. Please do whatever it takes to make sure my grandchildren and their children can have these same resources for their use.”*

***Washington State, Commercial Fisherman 3 years:***

*The decline in sockeye stocks in Karluk has had a devastating effect for some fishers on the West Side. Fertilization proved itself in this system & should be put back into the program. Even if the long term plan is to withdraw fertilization, a smoother transition may be achieved.*

***Kodiak Subsistence 17 years, Sport 18 years:***

*“Seems like salmon management has been good! The best decision I have seen in the 18 years I’ve lived in Kodiak is the return of the weir at Saltery Cove. I appreciate the restocking programs such as the king salmon on the road system. This program could be expanded. Also, I’d like to see sockeye salmon fisheries expanded on Kodiak road system.”*

## Chapter 4

### Long-Term Opportunities by Species and District, 2010-2030

#### 4.1 Development of Long-Term Opportunities

Earlier iterations of the Kodiak Comprehensive Salmon Plan set specific goals for fisheries in the Kodiak Management Area and addressed available opportunities to attain those goals. Under the overarching goal of improved fisheries, those plans identified specific projects as vehicles to improve Kodiak salmon fisheries (Appendix C and D). The KRPT has gathered input from the Kodiak public and local agencies regarding their priorities and projects of interest, spanning the next 20 years. Based on the KRPT's knowledge of the fisheries and the input and feedback gained through the surveys and meetings, the KRPT has revised Kodiak salmon production goals and compiled and prioritized lists of project opportunities to achieve those goals, by district and by species.

The public survey and meeting results demonstrated strong support to increase salmon abundance and expand enhancement projects. The public's top three priorities were enhancement, management, and rehabilitation to maintaining or increasing salmon production and abundance. Since the merging of FRED Division into the Division of Commercial Fisheries, Kodiak Area salmon enhancement activities have primarily been the responsibility of KRAA. There currently is no direct effort being made to rehabilitate weak runs in the KMA; however, those efforts would conceivably be shared among agencies and could include ADF&G, KRAA, USFWS, local governments, native corporations/interests and private landowners.

There was also support for increases in abundance of both rainbow and steelhead trout. ADF&G, Division of Sport Fish, and KRAA annually stock rainbow trout into many road-system lakes for recreational fisheries, and there is support for continuation of this project. Angler interest in steelhead fishing on Kodiak Island has created a need for stock monitoring and assessment studies, leading to development of an appropriate management policy consistent with the Statewide Rainbow Trout Policy. Presently, steelhead kelt numbers are annually indexed through weirs at a number of Kodiak drainages, including the Karluk and Ayakulik rivers. However, it is probable that, at least in some years, these index counts fail to account for a significant portion of the total run due to the fact that weirs typically are not operational until late May, after annual steelhead outmigrations have commenced. Additionally, kelt counts are unobtainable during flood events which interrupt weir operations, but also tend to accelerate outmigrations. Consequently, the magnitude and sustainability of total adult returns to most drainages remains unknown. Steelhead stock monitoring/assessment objectives for individual populations can be met either by adult mark-recapture studies or by enumeration and age composition analysis of outmigrant smolt populations."

The objectives for the annual harvest of natural salmon production of all Pacific salmon species in the KMA were determined by the KRPT as the average of the past ten years' (1999 - 2008) harvest of natural production (Table 5). Past KCSPs accepted an annual fluctuation in production cycles of 20%. For pink salmon, this would indicate a 20% fluctuation based on comparisons of even years with even years and odd years to odd. Such fluctuation is consistent with perceptions held today and remains the assumption for the life of this plan. Significant

changes in ocean and fresh water temperatures and changing values in the Pacific Decadal Oscillation may lead managers and researchers to expect significant changes over recent trends in salmon returns (previous 15-20 year period). In the 1970s, when the PDO reached values similar to those seen currently, there were sharp declines in salmon abundance in most parts of Alaska. Recent downward trends in production may indicate a similar response.

Supplemental harvest objectives were made as a projection based on publicly-supported desired increases to production by species and the potential of existing and proposed enhancement projects (Table 5). These goals reflect a significant and ambitious increase over that seen in previous phases of the KCSP.

Table 5. Harvest objectives for natural, supplemental, and total salmon production, 2010 - 2030.

<b>Phase III Kodiak Salmon Harvest Objectives</b>			
<b>Species</b>	<b>Natural</b>	<b>Supplemental</b>	<b>Total</b>
Sockeye	2,312,000	2,500,000	4,812,000
Pink			
Odd-year	11,235,000	15,000,000	26,235,000
Even-year	14,929,000	15,000,000	29,929,000
Chum	772,000	1,500,000	2,272,000
Coho	251,000	600,000	851,000
King	19,000	6,000	25,000
<b>Total</b>			
<b>Odd-year</b>	14,608,000	19,606,000	34,214,000
<b>Even-year</b>	18,183,000	19,606,000	37,789,000

The harvest goal for all species for odd and even years is estimated at 34.2 and million 37.8 salmon, respectively. This new goal exceeds the ten-year combined average harvest (Table 1) of naturally-produced and supplemental salmon by 9.9 million for odd-year production and by 15.5 million for even years.

The gap between historic KMA supplemental salmon harvest and KCSP Phase III supplemental salmon harvest objectives is identified in Table 6; this is the difference between the targeted supplemental goal for 2030 and the current ten-year average supplemental salmon harvest. The KCSP Phase III objectives for supplemental harvest are nearly two times the actual average supplemental salmon contribution to odd-year harvests and more than three times that of the average even-year harvest (1999-2008).



Table 6. KMA supplemental salmon harvest target 2010-2030, average supplemental salmon harvest 1999-2008, and GAP in KMA supplemental salmon production.

<b>Phase III Kodiak Salmon Harvest</b>			
<b>Species</b>	<b>Supplemental Target 2030</b>	<b>Supplemental Average 1999-2008</b>	<b>KMA Supplemental GAP 2010</b>
Sockeye	2,500,000	551,000	1,949,000
Pink			
Odd-year	15,000,000	8,841,000	6,159,000
Even-year	15,000,000	4,119,000	10,881,000
Chum	1,500,000	203,000	1,297,000
Coho	600,000	163,000	437,000
King	6,000	-	6,000
<b>Total</b>			
<b>Odd-year</b>	19,606,000	9,758,000	9,848,000
<b>Even-year</b>	19,606,000	5,036,000	14,570,000

Examination of supplemental harvest goals for the period 2010-2030 exposes a significant need to increase supplemental production. Significant expansion and new projects are required to meet these goals. While it may be possible that existing supplemental salmon production facilities in the KMA could make some increases to current production, any such expansion would likely still be insufficient to meet future harvest goals for supplemental chum salmon or even-year pink salmon. One or more new hatchery facilities is a logical alternative. Additional research programs to determine potential effects of new salmon hatchery projects will likely be required (e.g., coded wire tagging or thermal otolith marking of new salmon production). Hatchery investigation and site selection has been identified as a high priority project for all districts.

The KRPT must further look to prioritize projects based on the need to benefit as many user groups and districts as possible. The long-term opportunities identified in this section, specifically those with a high priority designation, are those that are expected to be undertaken during the life of this plan.

#### **4.2 Budgetary Constraints Affecting Phase III**

The KRPT has considered opportunities to implement new enhancement or rehabilitation projects in the KMA; however, their determination has been that priority must be placed on maintaining the present efforts in management and enhancement. It is important to note that the initiation of new or expanded projects in the KMA will likely need to have funding from sources other than ADF&G or KRAA, due to lack of funding and budgetary constraints of those agencies. In recent years, ADF&G has focused the bulk of its resources on maintaining projects

with management objectives. Funding for many research projects has been sought through grant opportunities.

Recently, there has been a rebound in commercial salmon prices, which has also lead to increased revenues to KRAA through the 2% Salmon Enhancement Tax on KMA commercial salmon harvest gross revenues. However, increased revenues have seen concomitant increases in the cost of operations. Though projects have been pared down and budgets refined, costs have continued to increase and KRAA revenues have not grown to allow funding of new projects in recent years. It is conceivable that additional cost-recovery fisheries will be conducted in coming years in order to offset budget shortfalls.

Participants in local fisheries should realize that some of the projects identified in the plan may never be implemented due to lack of funding. Outside funding sources are actively being sought by all agencies involved in achieving the goals of the KCSP.

### **4.3 Projects by District, by Species**

In concurrence with the previous phases of the KCSP, this plan identifies three types of projects as vehicles to improve Kodiak salmon fisheries:

- 1) Production and harvest improvement projects, shown by P in the far right column;
- 2) Research and data-gathering improvement projects, shown by R in the far right column;
- and
- 3) Management or policy improvement projects, shown by M in the far right column.

There will be overlap, with some projects addressing several opportunities for improvement and all relate to enhancement, rehabilitation, and habitat concerns.

Projects chosen by the KRPT were rated as either High or Low Priority; high-priority projects are those considered critical to reaching the long-term rehabilitation, harvest, and supplemental harvest goals set out by this plan. Low-priority projects, though considered important enough to merit inclusion in the Plan, are secondary to reaching the long-term harvest goals.

Projects were chosen within each district. Some are general to the district, while others address needs or concerns at a particular salmon system or stock. There are some projects which could provide benefits in all districts or help increase production and harvest of multiple salmon species.

Project descriptions given are general and are not to be considered all-inclusive or complete. Instead, these are general ideas for projects by species and area which, if undertaken, will require further planning and direction. In some cases, the project proposer did suggest a specific method and, if so, that information is included.

#### 4.3.1 Projects for Any / All Districts

The following projects were approved by the KRPT as appropriate for any or all districts of the KMA, to improve salmon fisheries:

##### Any/All Districts Sockeye Salmon Projects:

Priority Level	Project Name / Description	Status	Year	Project Goals
High	<b>Sockeye Salmon Nursery Lake Production Evaluation for Enhancement or Rehabilitation</b> — Evaluate sockeye populations and lakes, determine actions that could increase sockeye production, and plan and implement enhancement or rehabilitation projects to improve the productivity of sockeye systems and increase adult sockeye returns. Also, evaluate the potential of barren lakes and stock with juvenile sockeye salmon.	Ongoing	1950s-present	P R
High	<b>Sockeye Salmon Genetic Study</b> —Collect samples of Kodiak sockeye salmon and analyze to establish baseline genetic profiles for individual stocks. Utilize the results as a long-term management tool. Subsequently, collect and analyze samples to reveal locations of harvest for various stocks and salmon migration or harvest patterns.  <i>While this project was submitted for sockeye salmon, it could be used with other salmon species.</i>	New		R M

##### Any/All Districts Pink Salmon Projects:

Priority Level	Project Name / Description	Status	Year	Project Goals
High	<b>Pink Salmon Forecast Improvement</b> —Improve forecasting methods. Current methods utilize escapement data and rely on specific assumptions to generate forecasts. Incorporate marine temperature, zooplankton monitoring, etc.	Ongoing	1980 - present	R M
High	<b>Pink Salmon Post-Emergence Studies</b> —Provide information regarding spawning success and annual rates of survival, to provide more accurate forecasts.	New		R

**Any/All Districts Pink and Chum Salmon Projects:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>New Salmon Hatchery Site Survey/Selection</b> — Increase pink and chum salmon production through new hatchery development. Site survey/selection includes water source testing, infrastructure needs, fishery management concerns, broodstock concerns, cost/benefits, logistics, etc.	New		P R

**Any/All Districts Chum Salmon Projects:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Chum Salmon Escapement Monitoring</b> —Current monitoring is limited and conducted as funding allows. Reinstate/increase monitoring, requiring additional surveys or weirs.	Ongoing	1980 - present	P R M
High	<b>Chum Salmon Remote Release Evaluation</b> — Determine feasibility of chum fry releases at remote locations (other than at hatchery), including cost/benefits, logistics, management concerns, and biological concerns such as food availability at the time of release, potential predation or straying, etc. Recommend remote release locations, and proceed with permitting.	New		P R
High	<b>Chum Salmon Remote Releases</b> —Incubate and hatch chum salmon eggs at Kitoi Bay Hatchery, then transport, imprint and release juvenile chum salmon in remote locations (other than Kitoi Bay).	New		P

**Any/All Districts Chum and Coho Salmon Projects:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Escapement Monitoring</b> —Current monitoring is limited and conducted as funding allows. Reinstate/increase monitoring, requiring additional surveys or weirs, or staff existing weirs for additional weeks each season.	Ongoing	1980 - present	P R M

**Any/All Districts Steelhead Project:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Steelhead Population Monitoring</b> —Monitor/assess individual populations by adult mark-recapture studies or by enumeration and age composition analysis of outmigrant smolt populations	Ongoing		P

#### 4.3.2 Afognak District Projects

##### Afognak District All Salmon Projects:

Priority Level	Project Name / Description	Status	Year	Project Goals
High	<p><b>Afognak River (Litnik) Weir</b>—Enumerate adult salmon returning to Afognak Lake to assist management. Afognak is the primary early-run sockeye brood source for PCH.</p> <p>While primarily a sockeye salmon project, this also benefits pink and coho salmon, and extension of the dates of operation and staffing for additional weeks each season is suggested (Low priority).</p>	Ongoing	1978 - present	P R M
High	<p><b>Afognak Island Fish Pass Maintenance/Operation</b> (Paul’s, Laura, Gretchen, Portage, Little Kitoi, Seal Bay, Waterfall) —Provide access to spawning grounds blocked by cataracts or falls, enhancing returns. These fish passes were installed from the early 1950s through the 1980s, and while still functioning, they are no longer manned or regularly maintained.</p> <p>This project will benefit sockeye, pink, and coho salmon returning to these systems.</p>	Ongoing	1950s-present	P
High	<p><b>Kitoi Bay Hatchery Upgrade/ Remodel</b>—Improve the current water delivery system, install hydroelectric power generation to reduce carbon emissions and dependence on diesel, and rebuild/remodel structures and equipment to assure code compliance, health and safety, reduce fossil fuel use, and promote efficient operations.</p>	New		P
Low	<p><b>Malina Weir</b>—Former project: Enumerate adult returns to assist in management.</p> <p>This project will benefit sockeye, pink, and coho salmon returning to this system.</p>	Restart	1992 - 2005	P R M
Low	<p><b>Pauls Bay Weir</b>—Former project: Enumerate adult salmon returns to assist in management and assess continued success of past enhancement efforts. Could tie in to Afognak fish pass monitoring and maintenance.</p> <p>This project will benefit sockeye, pink, and coho salmon returning to this system.</p>	Restart	1978 - 2004	P R M

**Afognak District All Salmon Projects (continued):**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
Low	<p><b>Portage Weir</b>—Former project: Enumerate adult returns to assist in management and assess continued success of past enhancement efforts. Could tie in to Afognak fish pass monitoring and maintenance.</p> <p>This project will benefit sockeye, pink, and coho salmon returning to this system.</p>	Restart	1978 - 1993, 1999 - 2001	P R M
Low	<p><b>Thorsheim Weir</b>—Former project: Enumerate adult returns to assist in management.</p> <p>This project will benefit sockeye, pink, and coho salmon returning to this system.</p>	Restart	1986 - 1989, 1998, 1999, 2002	P R M

**Afognak District Sockeye Salmon Projects:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<p><b>Afognak Lake Sockeye Study and Evaluation</b>—Collect data and evaluate lake limnology and productivity, juvenile sockeye condition and survival, spawning or rearing areas, and other research activities. Evaluate enhancement or rehabilitation possibilities to improve productivity of sockeye systems and increase adult sockeye returns. Afognak Lake is the primary early-run sockeye brood source for PCH stocking projects.</p>	Ongoing	2003 - present	P R
High	<p><b>Kitoi Bay Hatchery Sockeye Enhancement</b>—Collect 600 thousand sockeye eggs, incubate, rear and release resulting fry.</p>	Ongoing	1972 - present	P
High	<p><b>Little Kitoi Sockeye Broodstock Development</b>—Stock late-run sockeye juveniles into Little Kitoi Lake to build a broodstock for PCH late-run sockeye egg takes. Evaluate and determine success by 12/31/14.</p>	Ongoing	1993 - present	P R
High	<p><b>Little Kitoi Limnology and Sockeye Stocking</b>—Collect and evaluate lake limnology data, determine appropriate salmon stocking level, and stock juvenile sockeye salmon.</p>	Ongoing	1990 - present	P R

**Afognak District Sockeye Salmon Projects (continued):**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Hidden Lake Limnology and Sockeye Stocking</b> —Collect and evaluate lake limnology data, determine appropriate salmon stocking level, and stock juvenile sockeye salmon.	Ongoing	1992 - present	P R
High	<b>Jennifer Lake Limnology and Sockeye Stocking</b> —Collect and evaluate lake limnology data, determine appropriate salmon stocking level, and stock juvenile sockeye salmon.	Ongoing	1992 - present	P R
High	<b>Big and Little Waterfall Limnology and Sockeye Stocking</b> —Collect and evaluate lake limnology data, determine appropriate salmon stocking level, and stock juvenile sockeye salmon.	Ongoing	1992 - present	P R
Low	<b>Waterfall Sockeye Weir/Barrier Net</b> —Barrier net allows for harvest in fishery generated by PCH stocking. Project reduced in scope due to budget constraints; net is currently installed for three weeks during fishery. Project method: extend project time, and improve barrier.	Ongoing Extend	1993 - present	P M
Low	<b>Malina Lakes Evaluation for Sockeye Enhancement or Rehabilitation</b> —Former project; following enrichment, Malina was determined to be rehabilitated in 2001 but recent returns have not been robust: Collect data and evaluate lake limnology and productivity, juvenile sockeye condition and survival, spawning or rearing areas, and other research activities. Evaluate enhancement or rehabilitation possibilities to improve the productivity of sockeye systems and increase adult sockeye returns. Possible methods suggested: lake enrichment and juvenile sockeye stocking. Malina is the secondary early-run sockeye brood source for PCH.	Restart	1991 - 2001	P R



**Afognak District Pink Salmon Projects:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Kitoi Bay Hatchery Pink Salmon Enhancement</b> — Collect 215 million pink salmon eggs from KBH broodstock, incubate, rear, and release resulting fry.	Ongoing	1972 - present	P
High	<b>Kitoi Bay Hatchery Pink Salmon Increased Capacity</b> — Seek increase in permitted pink salmon capacity to expand production.	New		P

**Afognak District Chum Salmon Project:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Kitoi Bay Hatchery Chum Salmon Enhancement</b> — Collect 28 million chum salmon eggs from KBH broodstock, incubate, rear, and release resulting fry.	Ongoing	1980 - present	P

**Afognak District Coho Salmon Projects:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Kitoi Bay Hatchery Coho Salmon Enhancement</b> — Collect 2.1 million coho salmon eggs from KBH broodstock, incubate, rear, and release resulting fry.	Ongoing	1982 - present	P
Low	<b>Waterfall Coho Weir</b> —Former project: Enumerate adult returns. Could tie in to Afognak fish pass monitoring and maintenance.	Restart		P R M
Low	<b>Shuyak Island Evaluation for Coho Enhancement</b> —Investigate opportunities to enhance coho salmon returns. Previous KCSP proposed coho egg incubation project at former Port Williams Cannery.	New		P R

4.3.3 Alitak District Projects

**Alitak District All Salmon Projects:**

Priority Level	Project Name / Description	Status	Year	Project Goals
High	<p><b>Dog Salmon River Weir</b>—Enumerate adult salmon returning to the Frazer Lake system to improve management. The weir is located close to the fishery specifically to improve the department’s ability to manage it effectively. Fish are also counted through the Frazer Lake fish pass, which is several days’ migration time from fishery location.</p> <p>While primarily a sockeye salmon project, this also benefits pink and coho salmon.</p>	Ongoing	1983 - present	P R M
High	<p><b>Dog Salmon Weir Extended Season</b>—Extend ongoing project to improve management. Extend the season at Dog Salmon weir; staff the weir for several additional weeks each season to give better resolution to escapements/expectations at Frazer Fish Pass.</p> <p>While primarily a sockeye salmon project, this also benefits pink and coho salmon (low priority).</p>	New		P R M
High	<p><b>Upper Station Weir (Olga Lakes)</b> —Enumerate adult salmon returns to Upper Station Creek and Olga Lakes to assist management.</p> <p>While primarily a sockeye salmon project, this also benefits pink and coho salmon.</p>	Ongoing	1974 - present	P R M
High	<p><b>Upper Station Weir Extended Season</b>—Extend current project to improve management. Extend the season at Upper Station weir; staff the weir for several additional weeks each season to give better resolution of total escapement.</p> <p>While primarily a sockeye salmon project, this also benefits pink and coho salmon (low priority).</p>	New		P R M

**Alitak District Sockeye Salmon Projects:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Frazer and Olga Lakes Sockeye Salmon Production Evaluation for Enhancement or Rehabilitation</b> —Annually evaluate sockeye population and system productivity against historical levels, determine actions that could increase sockeye production, and plan and implement projects to maintain or improve productivity.	New		P R
High	<b>Frazer Lake Fish Pass, Limnology and Sockeye Smolt</b> — Collect data and evaluate lake limnology and productivity, juvenile sockeye condition and survival, spawning or rearing areas, and other research activities. Operate and maintain fish pass over barrier falls and enumerate adult sockeye returns to Frazer Lake.	Ongoing	1964 - present	P R
High	<b>Frazer Lake Fish Pass Improvement/Extended Season</b> —Increase escapement from all parts of the sockeye run into Frazer Lake. Staff the fish pass for several additional weeks each season. Alter/rebuild infrastructure to improve fish movement through the system.	New		P R
High	<b>Frazer Lake Evaluation and Sockeye Enhancement</b> —Former project. Further enhance Frazer Lake sockeye run. Possible method suggested: lake enrichment to improve the productivity of system and increase adult sockeye returns.	Restart	1988 - 1992	P R
High	<b>Upper Station Limnology and Sockeye Smolt</b> — Collect data and evaluate lake limnology and productivity, juvenile sockeye condition and survival, spawning or rearing areas, and other research activities. Evaluate enhancement or rehabilitation possibilities to improve the productivity of sockeye systems and increase adult sockeye returns.	New		P R
High	<b>Upper Station Sockeye Back-Stocking</b> —Enhance or rehabilitate Olga Lakes sockeye runs. Possible method suggested: \ back-stocking juvenile sockeye salmon.	New		P

**Alitak District Sockeye Salmon Projects (continued):**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Akalura Lake Sockeye Smolt and Weir</b> —Former Project (inconsistent history): Evaluate juvenile sockeye condition and survival, and enumerate adult returns.	Restart	1930 - 2003	P R M
High	<b>Akalura Lakes Evaluation for Sockeye Enhancement or Rehabilitation</b> —Collect data and evaluate lake limnology and productivity, juvenile sockeye condition and survival, spawning or rearing areas, and other research activities. Evaluate enhancement or rehabilitation possibilities to improve the productivity of sockeye systems and increase adult sockeye returns. Possible methods suggested: Stock 1-check sockeye smolt to eliminate competition with sticklebacks.	New		P R
High	<b>Akalura Sockeye Rehabilitation</b> —Rehabilitate Akalura Lake sockeye run. Possible method suggested: back-stocking pre-smolt sockeye salmon.	New		P

#### 4.3.4 Eastside Kodiak District Projects

##### Eastside Kodiak District All Salmon Projects:

Priority Level	Project Name / Description	Status	Year	Project Goals
High	<p><b>Saltery Creek Weir</b>—Enumerate adult salmon escapement into Saltery Lake to improve management. Primary late-run sockeye brood source for PCH.</p> <p>While primarily a sockeye salmon project, this also benefits coho salmon, and extension of the dates of operation and staffing for additional weeks each season is suggested (high priority).</p>	Ongoing	1985 - 2003, 2008 - 2010	P R M

##### Eastside Kodiak District Sockeye Salmon Projects:

Priority Level	Project Name / Description	Status	Year	Project Goals
High	<p><b>Pasagshak/Lake Rose Tead Weir or DIDSON Sonar</b>—Enumerate adult salmon escapement into Lake Rose Tead to assist management. Use of DIDSON sonar would demonstrate effectiveness of a newer counting technology.</p> <p>While primarily a sockeye salmon project, this also benefits coho salmon, and extension of the dates of operation and staffing for additional weeks each season is suggested (high priority).</p>	New		P R M
Low	<p><b>Pasagshak Sockeye Spawning Area Expansion</b>—Improve and/or expand sockeye spawning grounds in this system to increase adult returns. Improvements could include artificial spawning channels and physical improvements to existing spawning areas.</p>	New		P
Low	<p><b>Miam Lake Evaluation for Sockeye Enhancement or Rehabilitation</b>—Collect data and evaluate lake limnology and productivity, juvenile sockeye condition and survival, spawning or rearing areas, and other research activities. Evaluate enhancement or rehabilitation possibilities to improve the productivity of sockeye systems and increase adult sockeye returns.</p> <p>Project is designated low priority, but was high priority in the KCSP Phase II Revision.</p>	New		P R

**Eastside Kodiak District Sockeye Salmon Projects (continued):**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
Low	<b>Sitkinak Lagoon/Lake Evaluation for Sockeye Enhancement</b> —Evaluate sockeye salmon production potential of Mark Lake and other anadromous systems near Sitkinak Lagoon. Collect data and evaluate lake limnology and productivity, juvenile sockeye condition and survival, spawning or rearing areas, and other research activities. Evaluate enhancement or rehabilitation possibilities to improve the productivity of sockeye systems and increase adult sockeye returns.	New		P R

**Eastside Kodiak District Coho Salmon Project:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Old Harbor Evaluation for Coho Enhancement</b> — Evaluate coho salmon production potential of systems near Old Harbor. Collect data and evaluate fresh and saltwater productivity, spawning or rearing areas, and other research activities. Evaluate enhancement possibilities to increase adult coho returns. Possible methods suggested: purchase coho smolt from PCH, imprint and release, or establish a new hatchery in the area.	New		P R

**Eastside Kodiak District King Salmon Project:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Old Harbor or Three Saints Bay Evaluation and King Salmon Enhancement</b> —Evaluate king salmon production potential of systems near Old Harbor. Collect data and evaluate fresh and salt water productivity, spawning or rearing areas, and other research activities. Evaluate enhancement possibilities to increase adult king returns. Possible methods suggested: purchase king smolt from PCH, imprint and release, or establish a new hatchery in the area.	New		P R

4.3.5 Northeast Kodiak District Projects

**Northeast Kodiak District All Salmon Projects:**

Priority Level	Project Name / Description	Status	Year	Project Goals
High	<p><b>Buskin River Weir</b>—Enumerate adult salmon returning to Buskin Lake to assist management.</p> <p>While primarily a sockeye and coho salmon project, this also benefits other anadromous species, and extension of the dates of operation and staffing for additional weeks each season is suggested (high priority). Buskin is the primary coho brood source for PCH</p>	Ongoing	1985-present	P R M
High	<p><b>Pillar Creek Hatchery Water Improvement Engineering</b>—Assess and plan PCH water improvements. Conduct an engineering and permitting review of PCH’s existing water source and delivery system to determine if it is possible to increase water volume and head pressure, or add filtration.</p> <p>While primarily a sockeye salmon project, this project would also benefits king, coho, and rainbow trout produced at this facility, and PCH salmon are stocked in systems in both the Northeast and Northwest Kodiak districts.</p>	New		P
High	<p><b>Pillar Creek Hatchery Water Supply Improvement</b>—Provide additional water volume and/or head pressure to PCH, allowing filtration and decreased reliance on wells. Project could include development of additional wells, installation of water reuse/recirculation, and installation of head troughs for water delivery.</p> <p>While primarily a sockeye salmon project, this project would also benefits king, coho, and rainbow trout produced at this facility, and PCH salmon are stocked in systems in both the Northeast and Northwest Kodiak districts.</p>	New		P

**Northeast Kodiak District Sockeye Salmon Projects:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Pillar Creek Hatchery Sockeye Enhancement</b> —Collect 20 million sockeye salmon eggs, incubate, rear, and release resulting fry.	Ongoing	1990 - present	P
High	<b>Buskin Lake Limnology and Sockeye Smolt</b> —Collect data and evaluate lake limnology and productivity, juvenile sockeye condition and survival, spawning or rearing areas, and other research activities. Evaluate enhancement or rehabilitation possibilities to improve the productivity of sockeye systems and increase adult sockeye returns.	New		P R
Low	<b>Buskin Sockeye Spawning Area Expansion</b> —Improve and/or expand sockeye spawning grounds in this system to increase adult returns. Improvements could include artificial spawning channels and physical improvements to existing spawning areas.	New		P

**Northeast Kodiak District Coho Salmon Projects:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Pillar Creek Hatchery Coho Enhancement and Road-System Stocking</b> —Collect 500 thousand coho salmon eggs, incubate, rear, and stock juveniles into lakes along the Kodiak road system and nearby islands.	Ongoing	1990 - present	P
High	<b>Pillar Creek Coho Enhancement and Cost Recovery</b> —Increase juvenile coho releases into Pillar Creek to increase returns to Monashka Bay and Pillar Creek, enhance fisheries, and allow for possible cost recovery.	New		P
High	<b>Road System Coho Escapement Monitoring</b> —Survey Kodiak road-system streams to determine coho escapements and assist in management.	Ongoing	1985 - present	P R M



**Northeast Kodiak District King Salmon Projects:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Pillar Creek Hatchery King Salmon Enhancement and Road-System Stocking</b> —Collect 450 thousand king salmon eggs, incubate, rear, and stock juveniles into Monashka Creek and the Olds and American Rivers along the Kodiak road system.	Ongoing	2000 - present	P
High	<b>Monashka Raceways Improvements</b> —Improve the Monashka Creek PCH-satellite raceways to increase ability to produce juvenile king salmon for stocking projects. Could include projects to increase water volume, bio-filtration to improve quality, add oxygenation and alarm systems and larger valves, and adding a third raceway at Monashka.	New		P
High	<b>Pillar Creek Hatchery King Salmon Capacity Increase</b> —Increase king salmon production capability at PCH. Resulting increased production would be stocked into local river systems or be available to other permitted entities (villages, etc.) for imprinting and release.	New		P

**Northeast Kodiak District Rainbow Trout Project:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Road-System Rainbow Trout Enhancement</b> —Transfer 92 thousand eyed Rainbow Trout eggs from Ft. Richardson Hatchery to PCH, incubate, rear, and stock into ponds and lakes on the road system and nearby islands.	Ongoing		P

4.3.6 Northwest Kodiak District Projects

**Northwest Kodiak District Sockeye Salmon Projects:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Barabara Lake Evaluation for Sockeye Enhancement or Rehabilitation</b> —Collect data and evaluate lake limnology and productivity, juvenile sockeye condition and survival, spawning or rearing areas, and other research activities. Evaluate enhancement or rehabilitation possibilities to improve the productivity of sockeye systems and increase adult sockeye returns.	New		P R
High	<b>Crescent Lake Limnology and Sockeye Stocking</b> —Collect and evaluate lake limnology data, determine appropriate salmon stocking level, and stock juvenile sockeye salmon.	Ongoing	1992 - present	P R
High	<b>Crescent Lake Evaluation for Sockeye Enhancement</b> —Further enhance the Crescent Lake sockeye run. Possible method suggested: lake enrichment and increased juvenile sockeye stocking.	New		P R
High	<b>Spruce Island Evaluation for Sockeye Enhancement</b> —Evaluate sockeye salmon production potential of systems near Ouzinkie. Collect data and evaluate fresh and saltwater productivity, spawning or rearing areas, and other research activities. Evaluate enhancement or rehabilitation possibilities to increase adult sockeye returns.	New		P R
High	<b>Spiridon Lake Limnology, Sockeye Stocking, Smolt Bypass and Fishery Monitoring</b> —Collect and evaluate lake limnology data, determine appropriate salmon stocking level, and stock juvenile sockeye salmon. Enumerate smolt, sample for age and condition, and channel smolt through a pipeline to bypass barrier falls. Monitor fisheries on salmon returns in Telrod Cove.	Ongoing	1989 - present	P R
High	<b>Spiridon Lake Evaluation and Enrichment for Sockeye Enhancement</b> —Further enhance Spiridon Lake sockeye run. Possible method suggested: lake enrichment to improve the productivity of system and increase adult sockeye returns.	New		P R

**Northwest Kodiak District Sockeye Salmon Projects (continued):**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
Low	<b>Little River Lake Sockeye Weir</b> —Former project: Enumerate adult sockeye returns to assist in management.	New		P R M
Low	<b>Uganik Lake Sockeye Weir</b> —Former project: Enumerate adult sockeye returns to assist in management.	Restart	1928 - 1932, 1989 - 1992	P R M
Low	<b>Mush Lake Evaluation for Sockeye Enhancement/ Rehabilitation</b> —Collect data and evaluate lake limnology and productivity, juvenile sockeye condition and survival, spawning or rearing areas, and other research activities. Evaluate enhancement or rehabilitation possibilities to improve the productivity of sockeye system and increase adult sockeye returns.	New		P R

4.3.7 Southwest Kodiak District Projects

**Southwest Kodiak District All Salmon Projects:**

Priority Level	Project Name / Description	Status	Year	Project Goals
High	<p><b>Karluk Weir</b>—Enumerate adult salmon returning to Karluk River and lake to assist management.</p> <p>This project benefits sockeye, pink, coho, and king salmon, and extension of the dates of operation and staffing for additional weeks each season is suggested (high priority).</p>	Ongoing	1921 - 1950, 1952, 1961 - present	P R M
High	<p><b>Ayakulik Weir</b>—Enumerate adult salmon returning to the Ayakulik River and Red Lake to assist management.</p> <p>This project benefits sockeye, pink, coho, and king salmon, and extension of the dates of operation and staffing for additional weeks each season is suggested (high priority).</p>	Ongoing	1973 - present	P R M

**Southwest Kodiak District Sockeye Salmon Projects:**

Priority Level	Project Name / Description	Status	Year	Project Goals
High	<p><b>Karluk and Ayakulik Sockeye Salmon Production Evaluation for Enhancement or Rehabilitation</b>—Annually evaluate sockeye population and system productivity against historical levels, determine actions that could increase sockeye production, and plan and implement projects to maintain or improve productivity.</p>	New		P R
High	<p><b>Karluk Limnology and Sockeye Smolt</b> (intermittent restarted 2010 after a four-year data gap) —Collect data and evaluate lake limnology and productivity, juvenile sockeye condition and survival, spawning or rearing areas, and other research activities. Evaluate enhancement or rehabilitation possibilities to improve the productivity of sockeye systems and increase adult sockeye returns.</p>	Restart	1980 - 2006	P R

**Southwest Kodiak District Sockeye Salmon Projects (continued):**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Karluk Early-Run Sockeye Rehabilitation</b> —Rehabilitate Karluk early-run sockeye salmon. Possible method suggested: back-stocking and/or streamside incubation.	Restart	1978 - 1985	P
High	<b>Karluk Lake Evaluation and Sockeye Rehabilitation</b> —Former project. Rehabilitate Karluk Lake sockeye runs. Possible method suggested: lake enrichment to improve the productivity of system and increase adult sockeye returns.	Restart	1986 - 1990	P R
High	<b>Karluk Lagoon DIDSON Sonar</b> —Enumerate escapement into Karluk Lagoon to assist management. Use of DIDSON sonar to allow accurate, timely assessment of movement into lagoon, and guard against overescapement.	New		R M
High	<b>Red Lake (Ayakulik) Limnology and Sockeye Smolt</b> —Former project (limnology restarted 2009). Collect data and evaluate lake limnology and productivity, juvenile sockeye condition and survival, spawning or rearing areas, and other research activities. Evaluate enhancement or rehabilitation possibilities to improve the productivity of sockeye systems and increase adult sockeye returns.	Restart	1986, 1990-1996	P R

**Southwest Kodiak District Chum Salmon Project:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<b>Sturgeon River Weir</b> —Enumerate chum salmon returning to Sturgeon system to assist management.	New		P R M

**Southwest Kodiak District King Salmon Projects:**

<b>Priority Level</b>	<b>Project Name / Description</b>	<b>Status</b>	<b>Year</b>	<b>Project Goals</b>
High	<p><b>Karluk River King Salmon Evaluation and Rehabilitation</b>—Rehabilitate Karluk king salmon. Collect data and evaluate fresh and saltwater productivity, spawning or rearing areas, and other research activities. Evaluate rehabilitation possibilities to increase adult king salmon returns. Possible methods suggested: spawning ground improvements, egg takes on returning adults/back-stocking progeny, streamside incubation, predator removal/exclusion, changes to management.</p>	New		P R

4.3.8 Other Projects

The KRPT will consider projects other than those given in the previous sections. Salmon populations and the physical processes that affect them are dynamic and changing. The KRPT recognizes that the list of projects provided in sections 4.3.1 through 4.3.7 may not be all-inclusive or complete, and that additional projects may be thought of that are desired or necessary. The KRPT meets at least annually to discuss current and future projects and such meetings are open to the public. A *New Project Opportunities* form is included as Appendix F.

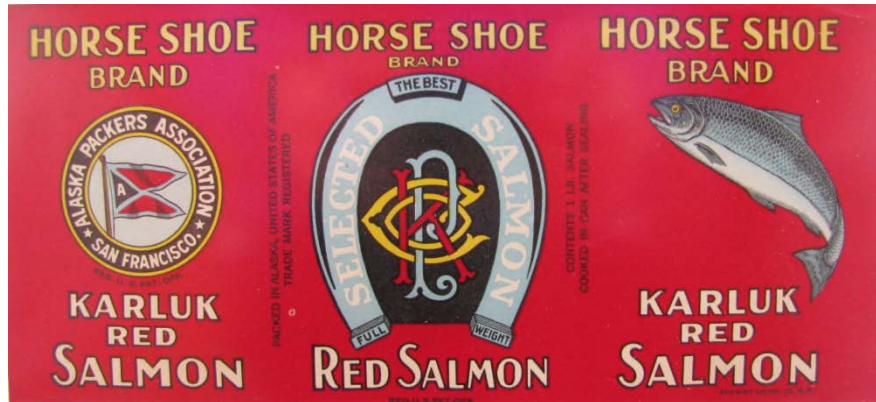


Figure 20. Horse Shoe Brand Karluk Red Salmon canning label.

#### 4.4 Summary of Production Opportunities by Species

##### 4.4.1 Sockeye Salmon

The total harvest objective of 4.8 million sockeye salmon can be achieved by management, enhancement, and rehabilitation of lake systems on the Kodiak Archipelago. During the past ten years this goal was not met. However, it is an achievable goal with implementation of some or all of the projects identified in the previous section (4.3).

Review of past commercial harvests (Appendix A) (Dinnocenzo 2010) shows that this latest sockeye salmon harvest goal of 4.8 million fish was actually surpassed in 1990, 1991, and 1996—all years with potential returns from lake fertilization projects. The future success of sockeye salmon and the ability to meet the long-term production goals for the KMA is, furthermore, directly dependent on effective management—particularly the ability of ADF&G to maintain salmon escapements within the range of established goals. It is anticipated that changes in regulatory policy and fishing practices may be necessary to provide a realistic expectation of attaining this objective.

While KRAA is clearly the lead agency for enhancement of salmon in the KMA, ADF&G is responsible for overseeing initiatives to rehabilitate weak runs. Rehabilitation and enhancement activities are the concern of all local fishery-related agencies and organizations, including the USFWS and Native/tribal organizations. Many of the projects outlined in this document will conceivably take place under joint agency efforts. While research is a key part of rehabilitation, active projects such as fish plants and lake fertilization are a part of this plan and will be evaluated and implemented, if feasible, within ADF&G policy guidelines.

The ability to meet the sockeye salmon harvest objective during the life of this plan will significantly depend upon limnology investigations that are conducted in the KMA. Currently, much of this work is funded by KRAA and Alaska Sustainable Salmon Fund (AKSSF) grants and is carried out under a cooperative arrangement between the ADF&G and KRAA. Limnological sampling provides information on the general productivity of a lake or system and can indicate the size of the population of juvenile sockeye a system can support. Furthermore, limnology data provides the foundation for determining a lake's candidacy for nutrient enrichment and its likely response to added nutrients. For purposes of stocking and monitoring

lake health, limnology is an integral tool in management decisions, and is vital to achievement of supplemental sockeye salmon goals during the life of this plan.

The recent (2006-2008) sockeye harvests have been below the stated harvest goal, and as explained above, the trend is expected to continue at least in the short term. If this trend continues, the goals of the KCSP should be amended and new programs will likely need to be implemented. This is in keeping with the time-honored system of periodically reviewing and updating the plan.



Figure 21. Lily Brand Pink Salmon canning label.

#### 4.4.2 Pink Salmon

The harvest objective of 29.9 million even-year and 26.2 million odd-year pink salmon relies on a combination of natural and supplemental production. This goal reflects a supplemental production shortfall of approximately 10.9 million even-year and 6.2 million odd-year pink salmon based on recent ten-year supplemental pink salmon harvest averages. In order to produce a portion of this shortfall, KBH would require significant upgrades to the water system and expansion of incubation capacity. Expansion at KBH is not likely to provide the entire production and harvest goal for supplemental production in the KMA. That production will likely have to be met by construction of a new facility in the region. Thus, hatchery site evaluation and selection projects need to be undertaken to meet this new harvest objective.

Forecasting efforts by area managers provide improved and more responsive management, and allow for better anticipation of runs and markets for permit holders in the KMA. Efforts to improve forecasting methods and the development of improved models are valuable contributions to the goals of improved fisheries and management. Additionally, ADF&G would like to increase research on post-emergent fry survival, which could also provide useful for forecasting run strength.

The public survey described in the last chapter showed moderate levels of interest by the public and permit holders in increasing pink numbers. However, similarly to chum salmon, the recent increases in the value of this species, and the ease of producing it in a hatchery, suggest that increased production could be supported. Worldwide demand for pink salmon and recognition



of the Alaska brand, coupled with investment by processors in developing products, has generated interest in significantly increased pink salmon production by Alaska hatcheries.

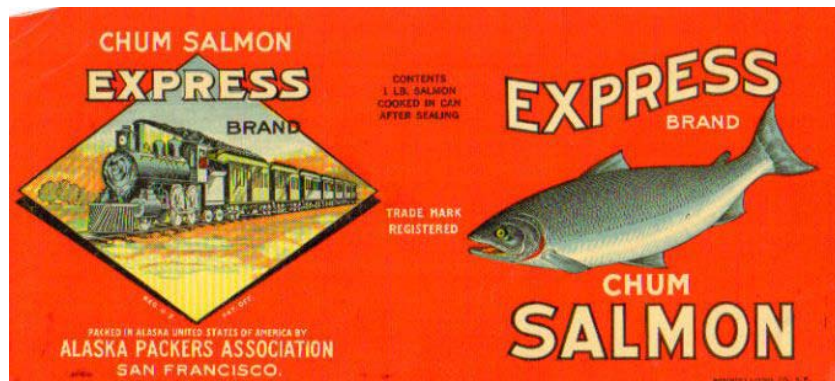


Figure 22. Express Brand Chum Salmon canning label.

#### 4.4.3 Chum Salmon

The area-wide harvest objectives of 2.2 million chum salmon are partially met with the current chum salmon program at KBH; however, expansion of this program is still unlikely to meet the goal in full. In spite of these limitations, the existing KBH chum program could be modified with remote rearing, and release programs that could go a long way toward meeting the supplemental harvest objective of this plan.

Should chum salmon remote release strategies be employed, it will be necessary to implement a marking program in order to evaluate the question of survival, imprinting, and potential straying. Although there are no significant marine survival studies conducted at KBH at this time, hatchery employees have witnessed increased predation on fish released from the facility. Remote releases could potentially bypass much predation and possibly help reduce early marine competition with pink salmon. Even considering the potential production via KBH remote releases, it seems likely that a new hatchery facility would be necessary to achieve the KCSP Phase III chum salmon harvest goal, and hatchery site evaluation and selection projects need to be undertaken.

The public survey demonstrated a relatively low interest in increasing production levels for chum salmon. However, recent increases in the value and the relative ease of hatchery production suggest that increased production could be supported and absorbed by permit holders and local processors.



Figure 23. Sledge Brand Coho Salmon canning label.

#### 4.4.4 Coho Salmon

The long term harvest objective of 851 thousand coho salmon can be achieved with the ongoing program of releasing coho salmon smolt from KBH and PCH. There is currently a gap of 437,000 adult fish in actual supplemental coho salmon production versus the Phase III goal of 600,000 coho contributed to harvest in the KMA. This goal could potentially be achieved, in part, through additional rearing raceways added at PCH and the release of smolt directly into Pillar Creek. In addition, returning fish could be part of a cost-recovery program for the hatchery, as well as a bonus to sport fish harvesters on the Kodiak road system.



Figure 24. Domestic Brand Choice Alaska Salmon canning label.

#### 4.4.5 King Salmon

The overall combined natural and supplemental harvest objective of 25 thousand king salmon can be met by increasing the existing program at PCH and the Monashka Bay satellite facility. The program, in its current form, has the potential to produce approximately 3,000 of the called-for 6,000 supplemental king salmon for harvest in the KMA. Expansion projects for this program could include imprinting and releasing king salmon smolt into Anton Larsen Bay. Returning adult king salmon would be available to Kodiak, Ouzinkie, and Port Lions residents.

Another area in which production increases might be realized is the rehabilitation of Karluk River king salmon. The community of Old Harbor has voiced strong support for king salmon enhancement, and investigations regarding potential enhancement projects should be undertaken.

The public survey described in the previous chapter showed strong public support for enhancement of king salmon. The KRPT supported doubling the supplemental harvest goals for this species and increased the number of projects included in various districts in the KMA.



Figure 25. ADF&G biologists transporting adult king salmon for egg take.

## Chapter 5

### Five-Year Plan of Action, 2010-2015

#### 5.1 Overview

The projects proposed for continuation or implementation over the next five years were determined by the KRPT, with consideration of all the input from surveys and meetings and with their knowledge of the needs of the KMA salmon fisheries. The designated projects are based on high priority projects defined in the previous chapter and are ongoing, new, or former projects that should be restarted. Prioritizing projects in this manner in former KCSP documents proved effective in influencing the budget building process; more than 80% of the projects listed in the five-year plan of the KCSP Phase II Revision were implemented, and were completed or are ongoing.

Responsibility for implementing programs and projects outlined in this document depends upon cooperation between all of agencies, both governmental and nongovernmental, and groups that have responsibility for KMA salmon resources. ADF&G, as the management and research agency, KRAA, as the designated salmon enhancement agency, bear the greatest responsibility for seeing to the initiation, maintenance, and completion of these projects. The land managers of the USFWS Kodiak National Wildlife Refuge and Kodiak's Alaska Native corporations are also key cooperators. Gaining consensus and cooperation with all private landowners is also essential to the success of KMA salmon projects.

Funding is a critical element to any project and, as has been stated previously, many projects may never be started for that reason alone. Local governments have provided financial support in the past. Karluk and Frazer Lake enrichment projects undertaken during the life of the previous KCSPs were paid for, in part, by the Kodiak Island Borough. It is possible to seek such partnerships again. During the public review process, many village residents voiced a desire for their tribal councils to provide financial support to facilitate salmon projects. In recent years, funding through avenues, such as grants, has been sought by all agencies. Finally, legislative assistance is a critical component to keeping programs funded, especially for ADF&G involvement in new or continuing projects. It's likely that new projects will be funded by multiple sources.

#### 5.2 2010-2015 Five-Year Plan by Species, Districts Affected, and Current Status

Following are lists of projects important to sustain and increase Kodiak salmon over the next five years, 2010-2015. These lists were developed from the larger, more comprehensive list provided in the previous chapter. Only project titles are shown; more complete descriptions may be found in the previous chapter. However, unlike the previous chapter, these are arranged by species, with notations on the district that may benefit most, plus whether this is an ongoing project the KRPT feels must continue or a new project the KRPT feels should begin within the next five years.

Note that in the Phase II Revision, the lead agency was also indicated in the list of priority projects for the short term. The KRPT did not feel the KCSP could authorize such assignment, so, to avoid possible misinterpretation, agency assignment has not continued in Phase III.

### 5.2.1 Multiple Salmon Species

<b>District</b>	<b>Project</b>	<b>Status</b>
Afognak	Afognak River (Litnik) Weir	Ongoing
Afognak	Afognak Island Fish Pass Maintenance/Operation	Ongoing
Afognak	Kitoy Bay Hatchery Upgrade/ Remodel	Ongoing
Alitak	Dog Salmon River Weir	Ongoing
Alitak	Dog Salmon Weir Extended Season	New
Alitak	Upper Station Creek (Olga lakes) Weir	Ongoing
Alitak	Upper Station (Olga lakes) Weir Extended Season	New
Eastside	Saltery Creek Weir	Ongoing
Eastside	Pasagshak Creek/Lake Rose Tead Weir or DIDSON Sonar	New
Northeast	Buskin River Weir	Ongoing
Northeast/ Northwest	Pillar Creek Hatchery Water Improvement Engineering	New
Northeast/ Northwest	Pillar Creek Hatchery Water Supply Improvement	New
Northwest/ Southwest	Karluk River Weir	Ongoing
Southwest	Ayakulik River Weir	Ongoing

### 5.2.2 Sockeye Salmon

<b>District</b>	<b>Project</b>	<b>Status</b>
ALL	Important Sockeye Salmon System Production Evaluation and Enhancement or Rehabilitation—Due to their relative importance to all users throughout Kodiak, because of their affects on subsistence, sport, and commercial users island-wide, annually monitor and evaluate sockeye salmon production of Karluk, Ayakulik, Frazer, Olga, and Afognak lakes against historical levels, determine actions that could increase sockeye production, and plan and implement projects to maintain or improve productivity.	Ongoing
Afognak	Afognak Lake Sockeye Study and Evaluation	Ongoing
Afognak	Kitoy Bay Hatchery Sockeye Enhancement	Ongoing
Afognak	Little Kitoy Sockeye Broodstock Development	Ongoing
Afognak	Little Kitoy Limnology and Sockeye Stocking	Ongoing
Afognak	Hidden Lake Limnology and Sockeye Stocking	Ongoing
Afognak	Jennifer Lake Limnology and Sockeye Stocking	Ongoing
Afognak	Big and Little Waterfall Limnology and Sockeye Stocking	Ongoing
Afognak	Waterfall Sockeye Weir/Barrier Net	Ongoing
Alitak	Frazer Lake Fish Pass, Limnology and Sockeye Smolt	Ongoing
Alitak	Frazer Lake Fish Pass Improvement/Extended Season	New
Alitak	Frazer Lake Evaluation and Sockeye Enhancement	New / Restart
Alitak	Upper Station Limnology and Sockeye Smolt	New
Northeast / Northwest	Pillar Creek Hatchery Sockeye Enhancement	Ongoing
Northeast	Buskin Lake Limnology and Sockeye Smolt	New
Northwest	Crescent Lake Limnology and Sockeye Stocking	Ongoing

5.2.2 Sockeye Salmon (continued):

<b>District</b>	<b>Project</b>	<b>Status</b>
Northwest	Spiridon Lake Limnology, Sockeye Stocking, Smolt Bypass, and Fishery Monitoring	Ongoing
Northwest	Spiridon Lake Evaluation and Enrichment for Sockeye Enhancement	New
Northwest/ Southwest	Karluk Limnology and Sockeye Smolt	New / Restart
Northwest/ Southwest	Karluk Lake Evaluation and Sockeye Rehabilitation	New / Restart
Northwest/ Southwest	Karluk Lagoon DIDSON Sonar	New
Southwest	Red Lake (Ayakulik) Limnology and Sockeye Smolt	New / Restart

5.2.3 Pink Salmon

<b>District</b>	<b>Project</b>	<b>Status</b>
All	Pink Salmon Forecast Improvement	Ongoing
All	New Pink Salmon Hatchery Site Survey/Selection	New
Afognak	Kitoy Bay Hatchery Pink Salmon Enhancement	Ongoing
Afognak	Kitoy Bay Hatchery Pink Salmon Increased Capacity	New

#### 5.2.4 Chum Salmon

<b>District</b>	<b>Project</b>	<b>Status</b>
All	Chum Salmon Escapement Monitoring	Ongoing
All	New Chum Salmon Hatchery Site Survey/Selection	New
All	Chum Salmon Remote Release Evaluation	New
Afognak	Kitoy Bay Hatchery Chum Salmon Enhancement	Ongoing
Southwest	Sturgeon River Weir	New

#### 5.2.5 Coho Salmon

<b>District</b>	<b>Project</b>	<b>Status</b>
All	Coho Salmon Escapement Monitoring	Ongoing
Afognak / Northwest	Kitoy Bay Hatchery Coho Salmon Enhancement	Ongoing
Eastside	Old Harbor Evaluation for Coho Enhancement	New
Northeast / Northwest	Pillar Creek Hatchery Coho Enhancement and Road-System Stocking	Ongoing
Northeast	Pillar Creek Coho Enhancement and Cost Recovery	New
Northeast	Road System Coho Escapement Monitoring	Ongoing



### 5.2.6 King Salmon

<b>District</b>	<b>Project</b>	<b>Status</b>
Eastside	Old Harbor or Three Saints Bay Evaluation and King Salmon Enhancement	New
Northeast	Pillar Creek Hatchery King Salmon Enhancement and Road-System Stocking	Ongoing
Northeast	Monashka Raceways Improvements	New
Northeast	Pillar Creek Hatchery King Salmon Capacity Increase	New
Northwest/ Southwest	Karluk River King Salmon Evaluation and Rehabilitation	New

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## APPENDICES

## APPENDIX A

### Commercial salmon harvest in the Kodiak Management Area, by species, 1882-2008

Year	Number of Salmon					Total <sup>a</sup>
	King <sup>a</sup>	Sockeye <sup>a</sup>	Coho <sup>a</sup>	Pink <sup>a</sup>	Chum <sup>a</sup>	
1882	-	58,800	-	-	-	58,800
1883	-	188,706	-	-	-	188,706
1884	-	282,184	-	-	-	282,184
1885	-	468,580	-	-	-	468,580
1886	-	646,100	-	-	-	646,100
1887	-	1,004,500	-	-	-	1,004,500
1888	-	2,781,100	-	-	-	2,781,100
1889	-	3,754,735	-	-	-	3,754,735
1890	-	3,592,707	-	-	-	3,592,707
1891	-	3,846,388	-	-	-	3,846,388
1892	-	3,126,459	-	-	-	3,126,459
1893	-	3,244,609	-	-	-	3,244,609
1894	-	3,830,336	-	-	-	3,830,336
1895	-	2,246,966	8,321	-	-	2,255,287
1896	-	3,328,846	-	-	-	3,328,846
1897	-	2,785,515	1,500	-	-	2,787,015
1898	-	2,033,094	19,175	-	-	2,052,269
1899	1,104	1,934,771	32,475	-	-	1,968,350
1900	4,838	3,450,480	32,239	-	-	3,487,557
1901	3,838	4,826,159	-	2,015	-	4,832,012
1902	2,932	3,868,101	34,972	-	-	3,906,005
1903	1,187	1,826,163	119,541	10,000	-	1,956,891
1904	3,190	2,875,118	103,136	5,180	-	2,986,624
1905	2,496	2,142,367	86,913	-	-	2,231,776
1906	3,640	3,980,462	23,738	-	-	4,007,840
1907	4,015	4,232,454	38,059	-	-	4,274,528
1908	3,028	2,487,848	73,789	286,374	-	2,851,039
1909	3,907	1,915,230	51,500	153,595	-	2,124,232
1910	1,598	1,954,717	44,291	215,382	-	2,215,988
1911	689	2,685,949	21,870	229,551	6,492	2,944,551
1912	686	2,246,467	17,491	547,171	24,588	2,836,403
1913	1,082	1,663,163	27,634	590,039	3,822	2,285,740
1914	1,329	1,255,444	32,063	1,726,411	13,094	3,028,341
1915	939	1,664,426	51,819	252,073	20,331	1,989,588
1916	1,038	3,373,055	49,683	3,181,890	28,962	6,634,628
1917	1,457	3,645,914	30,485	225,335	15,961	3,919,152
1918	2,021	1,894,466	78,169	2,467,325	81,699	4,523,680
1919	1,831	1,619,101	104,233	282,715	60,102	2,067,982
1920	1,637	1,957,636	88,970	1,977,421	55,175	4,080,839
1921	660	2,857,922	45,764	67,688	24,779	2,996,813
1922	703	1,097,359	119,724	2,766,257	223,970	4,208,013
1923	1,915	1,090,117	77,554	928,510	38,653	2,136,749
1924	1,002	1,407,525	120,686	5,435,091	117,883	7,082,187
1925	1,911	1,693,057	92,960	2,673,675	212,492	4,674,095
1926	596	3,015,366	174,475	4,606,694	324,706	8,121,837
1927	4,358	1,155,202	151,548	5,297,305	417,956	7,026,369
1928	2,546	1,592,003	290,645	1,535,313	726,480	4,146,987
1929	3,200	712,126	144,226	6,108,402	1,057,662	8,025,616
1930	4,991	466,409	228,800	1,651,398	419,011	2,770,609

Year	Number of Salmon						Total <sup>a</sup>
	King <sup>a</sup>	Sockeye <sup>a</sup>	Coho <sup>a</sup>	Pink <sup>a</sup>	Chum <sup>a</sup>		
1931	1,541	1,183,074	170,075	6,839,906	183,737	8,378,333	
1932	1,873	1,058,446	52,192	4,719,939	237,023	6,069,473	
1933	1,140	1,428,373	91,428	6,573,660	536,935	8,631,536	
1934	1,300	1,828,953	89,588	7,641,891	661,341	10,223,073	
1935	1,393	1,613,519	76,849	10,780,612	381,753	12,854,126	
1936	2,548	2,657,195	183,903	5,647,726	328,218	8,819,590	
1937	1,257	1,881,304	164,902	16,787,150	346,238	19,180,851	
1938	1,232	1,965,943	154,959	8,397,981	640,119	11,160,234	
1939	2,272	1,786,445	112,171	11,741,218	641,693	14,283,799	
1940	1,233	1,318,233	148,016	9,997,899	673,265	12,138,646	
1941	2,571	1,730,201	199,515	7,601,531	444,521	9,978,339	
1942	1,329	1,281,529	106,865	6,092,526	564,924	8,047,173	
1943	1,133	1,990,557	59,661	12,479,608	454,205	14,985,164	
1944	668	1,817,875	51,675	4,955,354	506,703	7,332,275	
1945	2,021	2,041,090	60,122	9,044,544	559,332	11,707,109	
1946	129	838,863	56,425	9,545,871	298,486	10,739,774	
1947	99	993,394	76,230	8,856,666	294,518	10,220,907	
1948	1,401	1,260,465	32,364	5,968,487	330,795	7,593,512	
1949	851	892,336	53,737	4,927,779	699,548	6,574,251	
1950	2,127	920,885	40,653	5,304,701	685,109	6,953,475	
1951	2,402	467,875	48,792	2,100,377	483,057	3,102,503	
1952	1,081	603,677	51,567	4,576,726	1,243,227	6,476,278	
1953	2,991	317,150	41,681	5,174,645	547,574	6,084,041	
1954	942	325,157	66,430	8,439,231	1,250,833	10,082,593	
1955	2,428	164,482	34,582	10,794,164	482,425	11,478,081	
1956	1,123	271,249	52,844	3,318,841	705,047	4,349,104	
1957	1,030	234,253	34,995	4,716,482	1,208,472	6,195,232	
1958	1,942	288,014	20,555	4,038,938	930,698	5,280,147	
1959	1,837	330,087	14,512	1,967,058	733,784	3,047,278	
1960	1,238	362,525	54,308	6,737,817	1,300,386	8,456,274	
1961	864	407,979	28,579	3,926,023	518,935	4,882,380	
1962	1,095	784,664	54,583	14,113,851	794,727	15,748,920	
1963	286	407,040	57,011	5,480,158	305,061	6,249,556	
1964	1,306	498,488	35,535	12,044,341	1,134,163	13,713,833	
1965	786	346,237	26,672	2,886,831	431,340	3,691,866	
1966	599	631,646	67,700	10,755,582	762,766	12,218,293	
1967	1,753	308,756	10,354	187,813	226,681	735,357	
1968	1,936	760,393	56,629	8,768,122	750,428	10,337,508	
1969	2,469	591,481	48,759	12,500,823	534,933	13,678,465	
1970	1,089	917,045	66,421	12,035,549	919,102	13,939,206	
1971	920	478,479	22,844	4,334,492	1,541,444	6,378,179	
1972	1,300	222,408	16,587	2,478,064	1,163,426	3,881,785	
1973	800	167,341	3,573	511,708	317,921	1,001,343	
1974	545	418,761	13,631	2,647,196	249,294	3,329,427	
1975	101	136,418	23,659	294,280	84,431	3,187,410	
1976	766	641,484	23,714	11,077,992	740,495	12,484,451	
1977	585	623,468	27,920	6,252,405	1,072,313	7,976,691	
1978	3,228	1,071,782	48,795	15,004,065	814,345	16,942,215	
1979	1,907	630,756	140,629	11,285,809	358,336	12,417,437	
1980	529	651,394	139,154	17,290,615	1,075,557	19,157,249	

-continued-

Year	Number of Salmon					Total <sup>a</sup>
	King <sup>a</sup>	Sockeye <sup>a</sup>	Coho <sup>a</sup>	Pink <sup>a</sup>	Chum <sup>a</sup>	
1981	1,418	1,288,949	121,544	10,336,747	1,345,313	13,093,971
1982	1,214	1,203,787	344,823	8,089,780	1,262,587	10,902,191
1983	3,839	1,231,989	157,612	4,603,371	1,085,165	7,081,976
1984	4,657	1,950,439	229,524	10,844,293	649,092	13,678,005
1985	4,970	1,842,731	284,166	7,334,825	430,757	9,897,449
1986	4,381	3,188,046	168,690	11,807,727	1,134,372	16,303,216
1987	4,613	1,794,224	192,433	4,920,365	680,994	7,592,629
1988	22,374	2,698,349	303,267	14,262,355	1,426,400	18,712,745
1989 <sup>b</sup>	106	1,289,511	2,599	6,825,124	19,972	8,137,312
1990	18,808	5,247,569	293,819	5,983,812	577,748	12,121,756
1991	22,234	5,702,754	324,860	16,642,836	1,029,057	23,721,741
1992	24,299	4,166,762	280,085	3,310,639	679,540	8,461,325
1993	41,029	4,377,523	313,467	34,019,390	588,328	39,339,737
1994	22,576	2,876,878	296,311	8,162,564	738,851	12,097,180
1995	18,704	4,487,568	307,795	42,849,294	1,522,786	49,186,147
1996	13,071	4,968,954	201,836	3,486,930	543,729	9,214,520
1997	18,728	2,503,423	381,005	11,035,023	520,264	14,458,443
1998	17,341	3,623,031	425,143	22,062,465	316,107	26,444,087
1999	18,299	4,650,738	296,979	11,898,307	913,817	17,778,140
2000	12,293	2,905,403	332,998	9,927,374	1,194,414	14,372,482
2001	23,827	2,657,601	407,977	19,567,052	1,053,691	23,710,148
2002	19,263	1,824,848	496,073	18,327,818	650,144	21,318,146
2003	18,531	4,041,886	339,457	14,065,615	1,151,757	19,617,246
2004	28,899	4,165,880	489,871	21,440,641	1,121,855	27,247,146
2005	14,411	3,047,142	396,030	30,139,434	477,416	34,074,433
2006	20,283	1,583,816	553,524	31,693,347	1,081,989	34,932,959
2007	17,222	2,012,564	356,063	24,809,213	728,912	27,923,974
2008	17,176	1,819,116	300,779	8,788,476	908,030	11,833,577
<hr/>						
<u>Averages<sup>b</sup></u>						
1998-2007	19,037	3,051,291	409,412	20,393,127	869,010	24,741,876
Even Years, 1998-2006				20,690,329		
Odd Years, 1997-2007				20,095,924		
1882-2007	5,145	1,825,728	132,702	7,566,089	545,635	10,074,070
1948-2007	7,823	1,647,068	165,341	10,613,741	801,724	13,235,697
Even Years, 1948-2006				11,214,281		
Odd Years, 1949-2007				12,488,434		

*Source:* 1882-1947 data are from processors case pack information. 1948-2008 data are from ADF&G fish ticket summaries and are considered more accurate than previous data.

<sup>a</sup> Harvest numbers do not include subsistence or test fishery catches, or commercially-caught fish retained for personal use.

<sup>b</sup> Averages do not include 1989. Commercial fisheries were severely limited due to the M/V Exxon Valdez oil spill.

## APPENDIX B

A historical perspective of Kodiak Island sockeye salmon enhancement and rehabilitation projects, 1890-2011

Project	Years	Funding Source
Karluk Voluntary Hatchery	1891, 1896-1917	Cannery Operators
Afognak Lake Federal Hatchery	1908-1932	US Bureau of Fisheries
Pauls Lake System Egg Plants and Fish Ladder Development	1951-1955	AK Territorial Dept. of Fisheries (TDF)
Frazer Lake Egg Plants, Fry Stocking, Adult Transplants	1951-1971	TDF, Alaska Dept. of Fish and Game (ADF&G)
Kitoy Bay Research Station/Hatchery	1953-present	TDF, ADF&G, Kodiak Regional Aquaculture Association (KRAA)
Bare Lake Enrichment	1955	US Fish and Wildlife Service
Frazer Lake Fish Ladder	1962-present	ADF&G, KRAA
Karluk Lake Streamside Incubation and Egg Plants	1979-1986	ADF&G
Kodiak Regional Aquaculture Association (KRAA)	1983-present	Salmon Enhancement Tax, Cost-recovery Fisheries
Karluk Lake Enrichment	1986-1990	KRAA, ADF&G, Kodiak Island Borough (KIB)
Frazer Lake Enrichment	1988-1992	KRAA, KIB
Kodiak and Afognak Island Lakes Feasibility Investigations	1990-1992	KRAA, ADF&G
Pillar Creek Hatchery	1990-present	KRAA, ADF&G
Afognak Lake Enrichment/Stocking	1990-2000	KRAA
Spiridon Lake Stocking	1990-present	KRAA
Malina Lakes Enrichment/Stocking	1991-2002, 2006	KRAA
Little Waterfall Enrichment/Stocking	1992-2001/-present	KRAA
Hidden Lake Stocking	1992-present	KRAA
Crescent Lake Stocking	1992-present	KRAA
Portage Lake Enrichment	1993-1997	KRAA
Laura Lake Enrichment/Stocking	1993-2001	KRAA
Jennifer Lake Stocking	1993-present	KRAA
Ruth Lake Stocking	1996-present	KRAA
Big Waterfall Lake Stocking	1999-present	KRAA
Little Kitoy Lake Enrichment	2000-2001	KRAA

## APPENDIX C

### Kodiak Comprehensive Salmon Plan 1982-2002, Phase II Revision: Long-term project list, by species and district

NOTE: Each project has a designated status of the following categories: ongoing, completed, closed or never undertaken. The following examples demonstrate the implications of each designation.

- The **ongoing** Saltery weir is currently being funded by KRAA as it provides useful data on escapement of sockeye salmon to the system; its continued funding has facilitated the egg-take operation of PCH and in turn, stocking of Spiridon Lake.
- The Summit Lake studies were **completed** for limnological purposes and no further information was required.
- Miam Lake, which is in the same drainage as Summit Lake, limnological studies were **never undertaken** as the two-lake system was determined to be too small to warrant an enhancement project.
- The Laura/Pauls, Portage, Little Waterfall, Malina, and Thorsheim weirs were **closed** due to budget constraints and priorities of ADF&G. They are not being operated at this time.

#### KCSP Phase II Revision Sockeye Salmon Projects by District

District	Priority	Projects	Status
Afognak	High	Afognak Lake study and fertilization	Study Ongoing
	High	Afognak Island fish passes	Ongoing
	High	Litnik weir	Ongoing
	High	Laura/Pauls weir	Closed
	High	Portage weir (Perenosa Bay)	Closed
	High	Little Waterfall weir	Closed
	High	Malina weir	Closed
	High	Thorsheim weir	Closed
	High	KBH sockeye enhancement	Ongoing
	High	Hidden Lake study and stocking	Ongoing
	High	Laura and Paul Lake studies	Completed
	High	Portage Lake pre-fertilization studies	Completed
	High	Upper Malina Lake fertilization and stocking	Completed
	High	Big and Little Waterfall Lake stockings	Ongoing
	High	Jennifer Lake stocking	Ongoing
	High	Big and Little Kitoi Lakes water quality	Big Completed, Little Kitoi Ongoing
	Low	Other studies on prioritized systems	Ongoing



KCSP Phase II Revision Sockeye Salmon Projects by District (continued)

District	Priority	Projects	Status
Alitak	High	Dog Salmon weir	Ongoing
	High	Upper Station (Olga) weir	Ongoing
	High	Akalura weir	Closed
	High	Olga Lakes (Upper Station) studies	Completed
	High	Frazer Lake limnology, fertilization, fish pass	Ongoing
	High	Akalura Lake studies	Completed
	Low	Horse Marine fish pass	Survey Completed
Eastside	High	Saltery weir	Ongoing
	High	Summit and Miam Lake studies	Summit Completed, Miam Not Begun
	Low	Pasagshak weir construction	Never undertaken
	Low	Pasagshak spawning area expansion	Never undertaken
	Low	Kaguyak and Kaiugnak Lake studies	Never undertaken
	Low	Sitkinak Lagoon and Lake studies	Never undertaken
	Low	Lake No 259422 study, South Arm Ugak Bay	Completed
Northeast	High	Pillar Creek Hatchery	Completed, Ongoing
	High	Buskin weir	Ongoing
Northwest and Southwest	High	Ayakulik and Karluk weirs	Ongoing
	High	Crescent Lake study	Ongoing
	High	Barabara Lake study	Completed
	High	Uyak study	Completed
	High	Karluk post-fertilization evaluation studies	Completed
	High	Spiridon Lake limnology and stocking study	Ongoing
	High	Mush Lake study	Completed
	High	Uganik weir	Closed
	High	Little River Lake studies	Completed
	High	Ayakulik Lake studies	Ongoing
	Low	Browns Lagoon Lake studies	Never undertaken

KCSP Phase II Revision Pink Salmon Projects by District

District	Priority	Projects	Status
All Districts	High	Kitoi Bay Hatchery expansion	Ongoing
	High	Construction of a new KBH facility	Completed

KCSP Phase II Revision Pink Salmon Projects by District (continued)

<b>District</b>	<b>Priority</b>	<b>Projects</b>	<b>Status</b>
Afognak	High High	Operation and maintenance of existing fish pass Coal Creek investigations	Ongoing Completed
Eastside	High	Seven Rivers fish pass investigation	Completed
Eastside, Northeast, Northwest	High	Hatchery site water investigations	Not completed
Northwest Kodiak	High	Brown's Lagoon fish pass investigation	Never undertaken

KCSP Phase II Revision Chum Salmon Projects by District

<b>District</b>	<b>Priority</b>	<b>Projects</b>	<b>Status</b>
Afognak	High	Kitoy Bay Hatchery upgrade	Completed
Alitak	High	Escapement monitoring projects	Ongoing
Eastside Kodiak	High High	Escapement monitoring projects Proposed Old Harbor/Three Saints Bay Hatchery studies	Ongoing Never undertaken
Mainland	High	Escapement monitoring projects	Ongoing
	Low	Kukak and Alinchak spawning habitat studies	Never undertaken
Northeast Kodiak	High	Escapement monitoring projects	Ongoing
Northwest Kodiak	High	Escapement monitoring projects	Ongoing
Southwest Kodiak	High	Escapement monitoring projects	Ongoing

KCSP Phase II Revision Coho Salmon Projects by District

<b>District</b>	<b>Priority</b>	<b>Projects</b>	<b>Status</b>
Afognak	High	Little Afognak Lake studies	Completed
	High	Fish passes: Pauls, Laura, Gretchen, Portage	Ongoing
	High	Fish passes: Little Kitoi, Seal Bay, Waterfall	Ongoing
	High	Pauls weir	Closed
	High	Portage weir	Closed
	High	Litnik weir	Ongoing
	High	Waterfall weir	Closed
	High	Thorsheim weir	Closed
	High	KBH 'One-Check' coho salmon project	Completed
	High	Hidden Lake stocking	Completed
	High	Cold Creek fish pass	Completed
	High	Portage Lake habitat studies	Never undertaken
	High	Shuyak Island enhancement studies	Never undertaken
High	Red Fox Bay management for escapement	Never undertaken	
	Low	Selief Bay site studies	Never undertaken
Alitak	High	Silver Salmon weir	Never undertaken
		Horse Marine weir	Never undertaken
		Upper Station weir	Ongoing
		Dog Salmon weir	Ongoing
		Akalura cooperative projects USFWS/ADF&G	Never undertaken
Eastside Kodiak	High	Saltery weir	Closed
	High	Pasagshak rehabilitation and enhancement	Never undertaken
	Low	Summit Lake Study	Never undertaken
Northeast Kodiak	High	Road system coho salmon stocking	Ongoing
	High	Buskin River weir	Ongoing
Northwest Kodiak	High	Dry Spruce Lake stocking study	Completed
	High	Crescent Lake stocking study	Discontinued
	High	Uganik weir	Never Undertaken
	Low	Brown's Lagoon, Baumanns Creek, Twin Lakes fish pass investigations	Completed Browns and Baumanns
	Low	Spruce Island scientific-education projects	Discontinued
Southwest Kodiak	High	Coho monitoring program	Ongoing
	High	Ayakulik and Karluk weir coho salmon escapement	Discontinued

## APPENDIX D

Kodiak Comprehensive Salmon Plan 1982-2002, Phase II Revision:  
Five-year plan of action projects, by species identified with lead agency

### KCSP Phase II Revision: Five-Year Sockeye Salmon Projects by District

<b>District</b>	<b>Projects – Lead Agency: ADF&amp;G</b>	<b>Status</b>
All Districts	Continuation of escapement monitoring programs using weirs, aerial surveys, and foot surveys	Ongoing
Alitak	Frazer fish pass and fertilization studies Upper Station (Olga Lakes) baseline data collection Red Lake limnology studies	Ongoing Complete Completed
Northeast	Pillar Creek Hatchery	Ongoing
Northwest	Spiridon Lake limnological studies	Ongoing
Southwest	Karluk Lake post-fertilization studies Evaluation of Upper Thumb River Rehabilitation Evaluation of Karluk Lake Rehabilitation	Completed Completed Incomplete

### KCSP Phase II Revision: Five-Year Sockeye Salmon Proposed Projects by District

<b>District</b>	<b>Projects – Lead Agency: KRAA</b>	<b>Status</b>
Afognak	Afognak Lake fertilization study Laura and Pauls lakes habitat & limnology studies Red Fox Lake limnology studies Hidden, Portage, Little Kitoi, Jennifer, and Waterfall lakes limnology studies Malina Lake fertilization and fry stocking Hidden Lake fry & pre-smolt stocking Waterfall Lake fry & pre-smolt stocking	Completed Completed Completed Ongoing Completed Ongoing Ongoing
Alitak	Frazer Lake fertilization project	Completed
Northeast	Pillar Creek Hatchery funding Crescent Lake fry stocking	Ongoing Ongoing
Northwest	Spiridon Lake fry stocking	Ongoing
Southwest	Karluk Lake fertilization project	Completed

KCSP Phase II Revision: Five-Year Pink Salmon Projects by District

<b>District</b>	<b>Projects – Lead Agency: KRAA and ADF&amp;G</b>	<b>Status</b>
Afognak	Waterfall Creek fish passes Cold Creek fish pass (cooperatively with logging company)	Completed Completed
Eastside	Site survey for a fish pass at Seven Rivers Hatchery site selection	Completed Not undertaken
Northwest	Hatchery site selections	Not undertaken

KCSP Phase II Revision: Five-Year Pink Salmon Projects by District

<b>District</b>	<b>Projects – Lead Agency: ADF&amp;G, KRAA, and USFWS</b>	<b>Status</b>
All Districts	Continuation of escapement monitoring programs using weirs, aerial surveys, and foot surveys	Ongoing
Afognak	KBH pink salmon production expansion	Completed, Ongoing
Northwest	Uganik weir	Completed, Closed

KCSP Phase II Revision: Five-Year Chum Salmon Projects by District

<b>District</b>	<b>Projects – Lead Agency: ADF&amp;G, KRAA, and USFWS</b>	<b>Status</b>
Afognak	KBH chum salmon phase-in program	Completed, Ongoing
Northwest	Uganik River weir	Closed

KCSP Phase II Revision: Five-Year Coho Salmon Projects by District

<b>District</b>	<b>Projects – Lead Agency: ADF&amp;G, USFWS, and KRAA</b>	<b>Status</b>
All Districts	Continuation of escapement monitoring program using weirs, aerial surveys, and foot surveys of streams Kodiak road system lake stocking	Ongoing Ongoing
Afognak	Fish pass operations at Waterfall, Pauls, Laura, Gretchen, Portage, and Little Kitoi lakes, and Seal Bay Creek Hidden and Little Kitoi lakes stocking KBH smolt production Spruce Island/Ouzinkie scientific/educational hatchery	Ongoing Ongoing Ongoing Closed

Northwest	Uganik River cooperative weir operation Dry Spruce Lake put & take stocking Crescent Lake put & take stocking	Closed Never Undertaken Ongoing
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KCSP Phase II Revision: Five-Year Coho Salmon Projects by District (continued)

<b>District</b>	<b>Projects – Lead Agency: ADF&amp;G and KRAA</b>	<b>Status</b>
Afognak	Cold Creek fish pass (cooperatively with logging company)	Completed

KCSP Phase II Revision Five-Year King Salmon Projects by District

<b>District</b>	<b>Projects – Lead Agency: ADF&amp;G</b>	<b>Status</b>
Northwest	Road-system stocking program	Ongoing

APPENDIX E

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**Kodiak Comprehensive Salmon Plan  
2009 Public Survey**

*Kodiak Regional Planning Team*

Thank you for taking the time to complete this very important survey. You will be asked questions about your use of salmon, your priorities of use and ways to sustain or increase salmon. Please share with us your opinions about current and new projects, about management, research and enhancement, and about how to pay for needed projects. This survey is anonymous and will be kept confidential.

The *Kodiak Regional Planning Team* (KRPT) was formed under Alaska State regulations with the primary purpose of preparing a Comprehensive Salmon Plan for supplementing natural salmon production and rehabilitating Kodiak salmon stocks. A Comprehensive Salmon Plan should assemble and integrate all relevant information regarding the development and protection of the salmon resource, for a long range period of time. This plan must define salmon production goals by species, area, and time. The KRPT will consider the needs of all user groups and ensure that the public has an opportunity to participate in the development of the comprehensive salmon plan.

The KRPT is interested in your views and opinions concerning improving salmon resources in the Kodiak Area. ***Thank you for your participation!***

1. What community do you live in? \_\_\_\_\_

What is your zip code of residence? \_\_\_\_\_

2. Do you have any initial comments or suggestions regarding Kodiak area salmon management, research, enhancement, rehabilitation and how to fund such projects (You will be asked a similar question at the end of this survey).

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3. Do you use salmon?

a) I eat salmon .....YES  How many years? \_\_\_\_\_ yrs.  
 NO

b) I catch salmon:

For subsistence .....YES  How many years? \_\_\_\_\_ yrs.  
 NO

For sport .....YES  How many years? \_\_\_\_\_ yrs.  
 NO

For sale (commercial) .....YES  How many years? \_\_\_\_\_ yrs.  
 NO

I am a Commercial Salmon Permit Holder YES  NO

Purse Seine ; Beach Seine ; Set Gillnet

I am a Commercial Salmon Crewman YES  NO

Purse Seine ; Beach Seine ; Set Gillnet

c) I work in processing .....YES  How many years? \_\_\_\_\_ yrs.  
 NO

d) I guide sport fishermen.....YES  How many years? \_\_\_\_\_ yrs.  
 NO

4. How do you prefer to catch salmon? (Check all that apply)

Commercial ... Subsistence... Sport..

5. Please tell us of your relative priority of the different types of fishing from highest to lowest, 1 being your highest priority and 3 being your lowest priority. For each fishing priority please rank your preferred species to catch, 1 being the most preferred and 5 being your least preferred. (See example below, then complete table on next page)

<b>EXAMPLE</b>	<b>Priority</b> (1, 2, or 3)	<b>Chinook</b>	<b>Sockeye</b>	<b>Chum</b>	<b>Pink</b>	<b>Coho</b>
		<i>Rank of preferred species to catch- 1 (High) through 5 (Low)</i>				
Commercial.....	<u>2</u>	<u>5<sup>th</sup></u>	<u>1<sup>st</sup></u>	<u>4<sup>th</sup></u>	<u>2<sup>nd</sup></u>	<u>3<sup>rd</sup></u>
Subsistence .....	<u>1</u>	<u>2<sup>nd</sup></u>	<u>1<sup>st</sup></u>	<u>4<sup>th</sup></u>	<u>5<sup>th</sup></u>	<u>3<sup>rd</sup></u>
Sport.....	<u>3</u>	<u>1<sup>st</sup></u>	<u>4<sup>th</sup></u>	<u>3<sup>rd</sup></u>	<u>5<sup>th</sup></u>	<u>2<sup>nd</sup></u>



**Please list your priorities and species preferences below:**

Priority (1, 2, or 3)	Chinook	Sockeye	Chum	Pink	Coho
	Rank of preferred species to catch- 1 (High) through 5 (Low)				
Commercial _____	_____	_____	_____	_____	_____
Subsistence _____	_____	_____	_____	_____	_____
Sport ..... _____	_____	_____	_____	_____	_____

6. Please list, from 1 to 7, your priority or preference for increasing fishing resources by type (species), through management, stocking or other enhancement projects, with 1 being the highest (top priority for increases) and 7 being the lowest (least priority for increases):

- Chinook (King) Salmon \_\_\_\_\_
- Sockeye (Red) Salmon \_\_\_\_\_
- Chum (Dog) Salmon \_\_\_\_\_
- Pink (Humpy) Salmon \_\_\_\_\_
- Coho (Silver) Salmon \_\_\_\_\_
- Rainbow Trout \_\_\_\_\_
- Steelhead \_\_\_\_\_

7. In the Kodiak Area, the following lakes/locations are currently stocked with salmon or are the site of current salmon enhancement projects:

Chinook salmon: Kodiak road system (Monashka Creek, Olds and American Rivers);

Sockeye salmon: Frazer Lake (south end Kodiak); Spiridon Lake (west side Kodiak); Crescent Lake (Port Lions); Ruth, Jennifer and Little Kitoi Lakes (east side Afognak); Hidden Lake (west side Afognak); and Little & Big Waterfall Lakes (north end Afognak);

Pink and Chum salmon: Kitoi Bay;

Coho salmon: Kodiak road system (many locations); Crescent Lake; Katmai Lake (Ouzinkie); Ruth, Jennifer & Little Kitoi Lakes. Coho smolt are also released into Kitoi Bay;

Rainbow Trout: Kodiak road system (many locations).

Please list projects you would like to see changed or modified and how:

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8. Please list any additional stocking or enhancement projects you would like to see developed: \_\_\_\_\_

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9. Please rank the following approaches (a-e), which might be used to sustain or increase Kodiak salmon numbers, with 1 being the highest priority and 5 being the lowest. If you have more specific comments about each approach, please include in the space provided.

Rank

a) Enhancement projects

for salmon and fisheries: \_\_\_\_\_ **How?** *Examples include hatchery releases, stocking lakes, lake fertilization, fish ladders, etc.* **Please comment...**

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Rank

b) Rehabilitation of weak  
of salmon stocks:

\_\_\_\_\_ **How?** *Examples include hatchery rearing and restocking, lake fertilization, etc.* **Please comment...**

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Rank

c) Management of Kodiak  
salmon and fisheries:

\_\_\_\_\_ **How?** *Examples include more management personnel, more escapement counts using weirs or aerial surveys, more fisheries monitoring, etc.* **Please comment...**

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Rank

d) Research of Kodiak

salmon and fisheries: \_\_\_\_\_ **How?** *Examples include study of adult or young salmon, salmon survival, salmon needs, salmon food sources (plankton), lake chemistry, freshwater or nearshore habitat, etc.* **Please comment...**

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e) Improve or Protect salmon habitat: Rank \_\_\_\_\_ *How? Please comment...* \_\_\_\_\_  
\_\_\_\_\_

10. Please use the following space to share any other thoughts you may have concerning Kodiak salmon, give us your comments or suggestions regarding Kodiak area salmon management, research, enhancement, rehabilitation and who should fund such projects.

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***Thank you for completing this survey***

## APPENDIX F

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### KODIAK REGIONAL PLANNING TEAM (KRPT) KODIAK COMPREHENSIVE SALMON PLAN, 2010-2030, NEW PROJECT OPPORTUNITIES FORM

This form is to be used by the public, Kodiak Regional Aquaculture Association (KRAA), Alaska Department of Fish and Game (ADF&G), and other governmental agencies to identify opportunities that may be worthy to pursue by which to rehabilitate and/or enhance Kodiak salmon fisheries and incorporate into the Kodiak Comprehensive Salmon Plan.

**PROJECT DESCRIPTION:**

1. WHAT (give a brief description of the project):

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2. WHERE AND WHEN (be specific as to the project location and timing):

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3. BENEFITS TO WHAT USER GROUPS:

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4. COST ESTIMATE OF PROJECT:

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5. OBSTACLES OR NEGATIVE SIDE OF PROJECT:

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KODIAK REGIONAL PLANNING TEAM (KRPT)  
KODIAK COMPREHENSIVE SALMON PLAN, 2010-2030  
NEW PROJECT OPPORTUNITIES FORM

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6. ADF&G DIVISION OF COMMERCIAL FISHERIES COMMENTS:

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7. ADF&G SPORT FISH DIVISION COMMENTS:

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8. KRAA COMMENTS:

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9. KRPT COMMENTS:

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